COMMITTEE WORKSHOP

BEFORE THE

CALIFORNIA ENERGY RESOURCES CONSERVATION

AND DEVELOPMENT COMMISSION

In the Matter of:	)	
	)	
Preparation of the 2007	)	Docket No.
Integrated Energy Policy	)	06-IEP-1E
Report (2007 IEPR)	)	
_____	)	

CALIFORNIA ENERGY COMMISSION

HEARING ROOM A

1516 NINTH STREET

SACRAMENTO, CALIFORNIA

FRIDAY, APRIL 20, 2007

9:00 A.M.

Reported by:
John Cota
Contract No. 150-04-002

CEC COMMISSIONERS PRESENT

Jackalyne Pfannenstiel, Presiding Member

John Geesman, Associate Member

ADVISORS PRESENT

Melissa Jones

Tim Tutt

CEC STAFF and CONTRACTORS PRESENT

Silvia Bender

Gary Klein

Kae Lewis

Belen Valencia

ALSO PRESENT

Eric Wanless, National Resources Defense Council (NRDC)

Zenaida Tapawan-Conway, California Public Utilities Commission (CPUC)

Jim Parks, Sacramento Municipal Utility District (SMUD)

Mike Rufo, Itron

Brian Horii, Energy and Environmental Economics, Inc., (E3)

Scott Tomashefsky, Northern California Power Agency (NCPA)

John Anderson, Rocky Mountain Institute (RMI)

Chuck Mass, Solar Thermal Companies

Ryan Bernardo, Braun & Blaising

I N D E X

P R O C E E D I N G S

9:02 a.m.

MS. LEWIS: Should we begin. This is the AB 2021 Workshop. Let me go through a few housekeeping details here before we begin the workshop itself.

For those of you who are not familiar with this building. The closest restaurants are located out the door right across from the lobby and to your left. There's a snack bar on the second floor under the white awning.

Lastly in event of an emergency and the building is evacuated please follow our employees to the appropriate exit. We will reconvene at Roosevelt Park located diagonally across the street from the building.

Please proceed calmly and quickly, again following the employees with whom you are meeting to safely exit. Thank you.

MS. BENDER: Good morning Chairman Pfannenstiel, Commissioner Geesman and advisors and members of the audience. We are here today for our AB 2021 Workshop, the first of our workshops.

I'd like to talk a little bit first

about the format that we're going to follow today. We're going to have two panel discussions focused on the topics today of Targets and Potential.

These presentations will be followed by discussion on these topics. And there will be time at the end of the workshop for general prepared statements on general issues for the record.

Our objectives today are to focus first of all on these topics of setting targets and understanding potential and how those studies are developed.

Our next workshop is going to focus on specifically on the topics of financing, procurement and evaluation of measurements.

We also have workshops set up in August where we'll begin to look at our draft recommendations on the goals. And we'll be talking about our methods used to those numbers.

Those will likely be joint workshops between the CEC and the CPUC. And at that point we will again describe our process for taking AB 2021 into its full implementation.

Our specific objectives today are to describe the work that's in progress by various

parties to begin to surface uncertainties about any assumptions or terms. To identify process issues that we need to clarify or work through more thoroughly. And to clarify roles and responsibilities of the various parties.

Now I also want to mention that the air conditioner provisions that are included in AB 2021 are going to be handled separately from this proceeding.

At this point I'd like to stop before we go into the legislation and allow the commissioners to make any opening remarks that they would like to make.

PRESIDING MEMBER PFANNENSTIEL: Thanks Silvia I just wanted to welcome people here, thanking you for helping us take on this incredibly, difficult issue. I guess everybody here understands that under AB 2021 the Energy Commission in consultation with the PUC needs to adopt ten year energy efficiency targets.

It's going to be a difficult and impactful decision that we'll put into our integrated, energy policy report this fall.

This is the beginning of that investigation. This is the first of we said of

two workshops on the subject. So with that, Commissioner Geesman any comments?

ASSOCIATE MEMBER GEESMAN: Thank you Madame Chair. I think looking back at the now four IEPR or IEPR updates that I've participated in since 2003 establishing the intellectual underpinning or planning foundation for the state's aspirations in the efficiency area has been a major void.

I don't think that we have yet turned our full attention to trying to provide proper definition to what those objectives should be.

Much of the rationale for that deference in past IEPR efforts is due to the fact that there was a major planning effort underway at the CPUC in launching the unprecedented investor-owned utility efficiency programs. But I think enough time has passed now that we can reflect upon that experience.

In the interim the legislator quite rightfully has stepped in and attempted to codify some of those objectives. In AB 2021 there is an overriding desire to get all of the big utilities, investor-owned as well as the publicly-owned utilities on the same page, capable of being

evaluated by the same metric.

I think this is going to be difficult work. It's obviously a first go round at it but I think some of the strength our process bring to that endeavor is the pluralism of our various stakeholders.

I don't think the state will be well served by attempting to aim for a one size fits all approach to efficiency programs. We can benefit greatly by the input of the various publicly-owned utilities, many of whom face completely different circumstances, both from each other and from the investor-owned utilities.

It's my hope that at the end of this particular IEPR cycle we've set up a framework by which progress can be evaluated fairly and equitably among each of the utilities but also that the state's got some pretty clear planning objectives which we can evaluate.

Just how much efficiency we should expect to invest in over the course of ten years. I know that there is other legislation that provides quite of bit of significance to AB 2021. I can't right now recall the number of it but it's authored by Assemblywoman Kehoe, now the chair of

the Senate Energy Committee that imposes a requirement on utilities that they exhaust the availability of, I think, cost effective and feasible energy efficiency report procuring conventional supplies.

So this work has great consequence. I certainly congratulate you for making it a major part of our agenda for this IEPR cycle. I look forward to the proceeding.

PRESIDING MEMBER PFANNENSTIEL: Thank you Commissioner Geesman. Now Silvia let's go.

MS. BENDER: Correct, we're starting to look a little bit here at three of the statements from AB 2021's text that are relevant for us today. And as Commissioner Geesman has just pointed out this is the clear intent of the legislature in this legislation that load-serving entities procure all cost-effective, energy efficiency so that the state can meet the goal of reducing total, forecasted, electricity consumption by ten percent over ten years.

To do that each local, publicly-owned utility will first acquire all energy efficiency and demand reduction resources that are cost-effective, reliable and feasible.

And thirdly the energy savings achieved through the enactment of this bill are an essential component of the state's plan to meet the governor's greenhouse gas reduction order.

AB 2021 lays out four basic requirements that involve three groups who contribute to this and to contribute through a public process. And those requirements are these.

The public utilities are to identify all cost-effective, efficiency potential and establish targets over a ten year period. And they are to do this every three years.

The Energy Commission then combines those POU targets with IOU targets that are established through the CPUC's process into the statewide estimate of all potentially, achievable savings in establishing the targets over the ten years.

The POUs then in turn report annually on those sources of funding, the cost effectiveness and the verified, energy efficiency and demand reductions from their independent evaluations.

And the commission then in turn compares those annual targets to the actual savings and demand reductions in our IEPR process and makes

any recommendations that might be made into approved progress towards those goals.

The schedule that is laid out in this legislation is this. That on or before June 1st of 2007 and every three years thereafter the public utilities will identify those potential and establish these targets and report them to the Energy Commission within 60 days of adoption by their local boards.

The PUC provides the IOU potential savings and annual target information to the Energy Commission in that intervening period by November 1st of 2007 and every three years thereafter.

The Energy Commission in consultation with the PUC will prepare the statewide estimate and establish the targets in a public process based at least in part on the most recent IOU and POU targets. So that's the schedule that's laid out. We're a little behind this year in our schedule but we will have our first set by November 1st to meet this deadline.

One of the things I want to bring up today is just a graphic to remind us again of the complexity and the diversity of the electric

system in California and all of the myriad pieces that are coming together here in this work. It is complex work and it is a host of people who have not worked together in this same way before. So this is just my mention or reminder as we go forward.

We're going to move now into our first panel. And I'm going to introduce Kae Lewis who is going to be the panel monitor for this. And she will introduce each of our panelists.

MS. LEWIS: Okay, our first panelist is --

PRESIDING MEMBER PFANNENSTIEL: Kae would you make sure your microphone is on, green light.

MS. LEWIS: Oh, thank you. The first panel is titled Statewide Energy Efficiency Targets. With AB 2021 we're expanding on a process that began with the adoption of efficiency goals for the investor-owned utilities in 2004.

At the time the energy action plan directed the IOUs to meet the loading order by pursuing all achievable, cost-effective, energy efficiency to goals set by the CPUC.

These goals are now being used for their

program planning and resource acquisition as evidenced by their 2006-2008 program offerings and the 2004, 2006 long-term, procurement filings.

The value of the energy, efficiency savings was initially intended to be measured by the extent to which they reduced California's forecasted electricity consumption and increased reliability over the next decade.

But there's many related benefits associated with these goal reductions. And in the 2005 IEPR Report we presented a concern for greenhouse gas emissions and the impact of increased peak demand.

In the future we need to rely more heavily on energy efficiency and demand reduction to meet these specific concerns.

Our first speaker Eric Wanless from the Natural Resources Defense Council will, among other things, address the value of linking these environmental and efficiency goals.

And as we speak both the IOUs and the POUs the publicly-owned utilities are in the midst of their efficiency planning processes.

We will hear from Zenaida Tapawan-Conway from the energy division of the CPUC who will update us on the efficiency portfolio planning for

the 2009 to 11 programs for the IOUs.

And then lastly Jim Parks from Sacramento Municipal Utility District will provide insight into how one POU and not quite an averaged sized one but how they have developed energy efficiency, goal options and is now in the process of having these goals adopted by their board.

AB 2021 is suggesting that we can best meet our state goals by coordinating the planning for energy efficiency and demand reduction. But that grand plan is only the sum of its parts.

And our goal here today is to ask our panelists and participants at this first workshop to address some of the challenges that they see from their perspective.

MR. WANLESS: Good morning. I'd like to first thank the commission and the commission staff for the opportunity to speak this morning. I don't have slides today so I'm just going to talk through some of the things that NRDC believes is important in this process.

And then I'll go into a little more detail on some of the questions that were proposed in the attachment A for this workshop.

So in looking at energy efficiency in an

AB 32 context as NRDC is generally looking at things these days. AB 32 will require the state to reduce its greenhouse gas emissions roughly by a 174 million metric tons. It's about the equivalent to the annual emissions of 33 million cars.

If you look at the climate action team report and some additional opportunities that exist for energy efficiency we can get about 20 percent of those required reductions through energy efficiency. It's the second, largest strategy after the emissions of cleaner or, excuse me, after cleaner cars are addressed.

The important thing about energy efficiency in this context is that it's the cheapest and most likely easiest way for California to reduce our emissions. That's true because of a lot of the great work that has happened in the Energy Commission in terms of maintaining California's success with energy efficiency so I'm not going to throw out a lot of numbers that we are all familiar with.

But just to touch on them briefly. California saves roughly 40 thousand gigawatts, gigawatt hours every year through energy

efficiency. And that's a huge chunk.

It's cost effective if you look at investor-owned utility investments in energy efficiency over the past five years or so. Or, excuse me, the past ten years. The cost of conserved energy ranges anywhere between about two and a half to three and a half cents per kilowatt hour on average.

So energy efficiency presents an enormous opportunity for California to achieve meaningful greenhouse gas reductions pretty quickly because we have a lot of experience with it. And it makes sense financially.

Moving into some of the specific questions that were posed in the attachment I want to talk briefly about what's necessary when we're compiling all these potentials and targets from all the different utilities.

I think one of the most important things that we need to insure is that when we're putting all of this data together that we have an apples to apples edition. And what I mean by that is if the commission is going to be developing total, technical potential, economic potential, programic potential, those sort of things; those terms need

to mean the same thing to all the parties involved. And they need to be defined in the same way.

If you're looking at, so cost effectiveness for instance needs to be judged and evaluated the same way across the utilities. And that means that all the assumptions that go into cost effectiveness like avoided costs and all those sort of things need to be vetted by the commission and we need to make sure that that edition before we lump all those things together is a, makes sense.

More generally the assumptions that are going into the potentials and the targets need to be vetted. So we need to be asking, what are the assumed measure costs for energy efficiency. Does that make sense? Do the different utilities have, you know, similar things for that? What's the measure savings? And those sort of things need to be evaluated by the commission and by stakeholders if possible.

So that's kind of looking at the potentials part of this. Looking at how the AB 2021 targets might interface with other goals and other targets, I think it's very important that

energy-efficiency targets are distinct from the other targets in the sense that double counting needs to be avoided.

In the extreme case, just as an example, you don't want be counting, say renewable energy investments, towards energy-efficiency targets. And it's very important that those things are distinct.

In terms of the timing issues that the attachment asked about I think that the CEC and the Public Utilities Commission have a history of working together. NRDC is not that worried about the timing issues. I think that is something that can be worked out pretty easily.

Moving into evaluating the targets that are set by the different utilities and evaluating the reasonableness of the targets; it's very important that you evaluate the quantity of the untapped, potential, energy-efficiency resource for the different utilities when you're considering setting the targets.

So I can imagine that some utilities that have been investing a lot in energy efficiency might have, or excuse me, some utilities that may not have a longer history of

investing in energy efficiency have potentially a lot more potential for quick and easy energy-efficiency investments.

And if you talk to say someone in emerging technology, excuse me, emerging technologies, they might argue that all utilities have a lot of untapped potential which is true also.

So if you're looking for metrics to evaluate untapped, energy-efficiency potential and targets, I think a good metric for that is the target as a percent of total potential. That gets at looking at how much there is, how much room there is to grow and how aggressive the targets are.

Kind of stepping back a little bit, when we're setting targets we need to make sure that the energy-efficiency targets reflect the same things that went into the potentials. And what I mean by that is that if you're, for instance, counting supply-side, energy-efficiency investments and transmission and distribution, energy-efficiency investments and you're relying on that to count towards targets you need to be very certain that those things are going into

developing the potentials as well. And that's not to say that energy efficiency on all sides is very important.

So my opinion and NRDC's opinion is that demand-side, energy-efficiency targets should be independent. And that basically the demand-side, energy-efficiency investments are the only things that should count towards meeting the targets.

Other things that are important to look at when you're evaluating the ten year targets are the ramp up rates for investments in energy efficiency. And that's especially true in the AB 32 context in the state where we need to start capturing significant, emissions reductions sooner rather than later.

So I think it's important to see, you know, are the targets are they ramping up gradually? Are they hockey, you know, stick shaped like a lot of the graphs you see in the PUC proceedings for energy-efficiency investments.

It's important to evaluate how quickly investments in energy efficiency are happening.

And then again just talking back to what I spoke to a little bit before about the assumptions; all the things that went into setting

the targets and all the things that went into the potential need to be very dutifully vetted with the commission in avoided costs, what's the avoided generation, what are the cost tests being used to establish economic potential and all those sort of things.

If you look at comparing the targets across utilities, comparing one utility to another. I think that the metrics there could be very different.

I still think that energy-efficiency targets as a percent of total potential is a good metric to look at. But I think that might be a lot harder comparing across utilities. And it also gets into a lot of difficult things regarding assumptions that went into the potentials for the different utilities.

So in my mind the other metrics that are good to compare across utilities are things like energy-efficiency targets as a percent of total sales, gigawatt hour sales and that sort of thing. Because that data is readily available and you get away from some of the issues associated with trying to make sure that all the potentials mean the same thing.

Just a quick side note on this and then I'll finish my little talk here. When you're looking across utilities oftentimes people bring up costs of the energy efficiency in terms of dollars per kilowatt hour.

And I think this is an important data point. And I think it gives you a good sense of a utilities portfolio. But I don't think it is a very valuable metric for comparing one utility to another.

And I think if that becomes a point of comparison across utilities it incentives the wrong things. And the potential problems I see with that sort of metric are, so if you have one utility that has a very comprehensive, energy-efficiency portfolio and is investing in maybe a lot cheaper resources and then also pushing kind of the front end of the envelope investing perhaps more expensive technologies. They're going to be penalized because they're going to have a more expensive kilowatt hour, or dollars per kilowatt hour basis.

And the flip side of that is if you have a utility that is just kind of starting out with their energy efficiency programs, you're really

encouraging cream skimming. You're not encouraging kind of a long-term view. And what I mean by that is if your metric for looking across utilities is dollars per kilowatt hour then the utilities are incented to go after the cheapest, energy efficiency. Where in California's current AB 32 context, a broad portfolio and a forward-looking, energy-efficiency, investment portfolio is important.

So I'm going to stop there and thanks again for the opportunity to speak to you.

PRESIDING MEMBER PFANNENSTIEL: Thank you Eric. A question that's probably more conceptual than quantitative, but in this post AB 32 world as you began with when carbon is a, the quantification of carbon becomes really important. How do you think that affects the cost-effectiveness test of what the potential is?

MR. WANLESS: In terms of assigning like a cost to carbon and. I think that it definitely makes energy efficiency more appealing. And I don't think that necessarily moves measures around relative to each other that much. But I think it affects the total investment in energy efficiency in a positive way.

And I think that if you have a cost of carbon that is something that has a lot of certainty to it so it's not going to necessarily a lot over time, then that adds additional incentive for energy efficiency.

PRESIDING MEMBER PFANNENSTIEL: That's going to be one of the biggest drivers don't you agree in terms of the overall, economic potential that we'll be looking at this year.

MR. WANLESS: I do and I do think that energy efficiency on its own without the cost of carbon is extremely cost effective.

PRESIDING MEMBER PFANNENSTIEL: Sure.

MR. WANLESS: And yes I agree that that will affect it.

PRESIDING MEMBER PFANNENSTIEL: Thanks very much. Commissioner?

ASSOCIATE MEMBER GEESMAN: In terms of determining cost effectiveness do you think we ought to have a common gas price forecast assumption?

MR. WANLESS: I think to the extent that the parties can work together and agree on, either agree to have differences and have that vetted with all parties and with the commission to make

sure it's reasonable; I don't know if it's 100 percent necessary to have an agreed upon gas price.

ASSOCIATE MEMBER GEESMAN: I'm not so much talking about an upon gas price . . .

MR. WANLESS: Okay.

ASSOCIATE MEMBER GEESMAN: . . . but do you think there ought to be a common assumption as to gas price projections?

MR. WANLESS: I don't know a lot about the gas markets but to me it seems that most utilities are going to have somewhat similar costs of gas in their long-term forecasts.

ASSOCIATE MEMBER GEESMAN: I wish that were the case. Commissioner Pfannenstiel and I spent a great deal of time last year going through the multiple, conflicting, gas, price forecasts used at the Public Utilities Commission to evaluate the RPS program, to evaluate energy efficiency, to determine avoided costs per QFs. And it would seem just a function of regulatory hygiene that you would use a common set of projections to evaluate cost effectiveness, at least across renewables, efficiency and QF projects.

Now we're broadening the arena to include not just the investor-owned utilities but also the municipals. Should we use a common gas price assumption?

MR. WANLESS: I don't see why that would be a problem from my end.

ASSOCIATE MEMBER GEESMAN: What about a discount rate?

MR. WANLESS: Discount rate, I would say that a kind of societal, discount rate is the appropriate metric to use when we're talking about energy efficiency. And I know that there is also a precedent I think in the CPUC proceedings for using discount rates that are not the societal, discount rate. But from our end I think the societal, discount rate reflects the true value or the true transaction of investing in energy efficiency in terms of benefits for the society.

ASSOCIATE MEMBER GEESMAN: And that's been a position your organization has advocated in our standard setting process and one that we have embraced. So if I understand you correctly, in evaluating these different programs across utilities you believe that we ought to apply a social, discount rate consistently across each of

the utilities.

MR. WANLESS: Yes I think in my ideal world that would be preferred but . . .

ASSOCIATE MEMBER GEESMAN: Now this is California. I'm assuming it's your ideal world (laughter).

MR. WANLESS: Yeah.

ASSOCIATE MEMBER GEESMAN: Should there be a time of use or time of delivery component?

MR. WANLESS: That's something I haven't thought about a lot. I'm also going to be submitting written comments for next Friday. So that's something I can think about more and address in . . .

ASSOCIATE MEMBER GEESMAN: In the RPS program each of the utilities put some adjustment in the prices they're willing to pay based on their calculated time of delivery. I'm told that it is a similar concept employed by some of their other programs.

Because it's all proprietary we haven't been able to figure how they actually do it. There is a belief that this commission has expressed that it ought to be common across all utilities.

But, you know, I think that's something that you should comment upon in your written remarks.

MR. WANLESS: Thank you.

ASSOCIATE MEMBER GEESMAN: I think those are all the questions I have.

PRESIDING MEMBER PFANNENSTIEL: Thanks. Kae.

MS. LEWIS: Okay. Our next speaker is going to be Zenaida from the PUC to talk about their current process.

MS. TAPAWAN-CONWAY: Good morning commissioners and members of the audience. First of all thank you very much for inviting the CPUC to participate in this workshop.

My name is Zenaida Conway . . . is it?

MR. KLEIN: Now it's on.

MS. TAPAWAN-CONWAY: It's on, oh. Okay. Well first of all good morning again commissioners and members of the audience. And I appreciate the opportunity to be here on behalf of the CPUC.

I'm the supervisor for the energy-efficiency section in the energy division. And my presentation this morning will basically focus on the CPUC's energy savings and demand reduction

goals for the public, for the investor owned utilities or IOUs under our jurisdiction and activities that we are currently undertaking or plan to undertake with respect to updating of the goals.

At the end of my presentation I have our initial responses to the questions that are attached to the workshop notice.

Next slide. For those of you who got the black and white copy of my handout there is a typo error at the bottom of the page of slide two. It should say, 2008, 2006, 2008. The overhead is okay. But the handout is, there's a typo there.

Okay as most of you are probably aware the PUC has adopted energy savings goals for the California investor-owned utilities from 2004 through 2013 back in September of 2004.

And these goals were adopted in D.04-09-060 and they are consistent with the Energy Action Plan. And they seek to reduce use per capita in California.

The PUC chose aggressive goals. The electric goals are intended to capture 70% of the economic potential and 90% of the maximum, achievable, potential savings in California.

While the natural gas goals are meant to capture about 40% of maximum, achievable potential in the state.

For the 2006-2008 program cycle the commission authorized about 2.1 billion dollars worth of funding for the utilities' energy-efficiency, program portfolio funded primarily through the public goods charge and the procurement funds, roughly half, 50% each for these cycles.

Next slide. I just put this slide in there to show you the goals that were adopted for the utilities for 2004 through 2013. And the shading just basically means that we are in that year of the program cycle. So I'm not going to go over this slide at this point.

Next slide. So what are we doing in terms of updating of the goals. In D.04-09-060 the CPUC directed that the adopted goals will apply to the 2006-2008 program cycle without further updates.

However in preparation for the 2009-2011 program cycle the CPUC directed energy division staff to collaborate with CEC staff and referred jointly as joint staff to prepare recommendations

for adjustments to the adopted, savings goals.

We have actually initially coordinated with CEC staff. And as joint staff we have prepared award plan for adjustments to the adopted savings goals as appropriate based on different factors.

Some of which are listed here. Updated savings potentials studies, program accomplishment data, changes to codes and standards, program evaluation results and other factors that staff would deem appropriate.

Next slide. In order to assist us in carrying our task in updating the energy-efficiency goals for the IOUs the CPUC Energy Division selected a consultant in 2006. And that's Itron to conduct the necessary studies for goals updates.

However contracting difficulties delayed the start of the consultant's work. But this means that the consultant's preliminary information will not be available until the fourth quarter of 2007. And their more refined information in goals updating recommendations will be available sometime in mid 2008.

Staff expects that the 2004 fourth

quarter preliminary data updates that will come from our consultants will inform the PUC deliberation regarding the utilities long-term procurement filings and our initial collaborative work with the California Air Resources Board on the AB 32 target setting. And that the refined data that hopefully our consultant will come up in 2008 will inform more precise estimates for any adjustments to the CPUC energy-efficiency goals for 2012 and beyond and the EE contributions for the 2014-2020 AB 32 purposes.

ASSOCIATE MEMBER GEESMAN: Let me understand what you just said. First that your consultant work will not be available to inform our report.

MS. TAPAWAN-CONWAY: Yes.

ASSOCIATE MEMBER GEESMAN: And second that it will not be available to inform the planning for the next three year cycle of utilities programs. Is that right?

MS. TAPAWAN-CONWAY: Yes. And in fact the next slide will talk about what we have proposed in terms of, you know, our joint staff recommendations to the PUC.

We basically propose that to kick off

the planning process for 2009-2011 program cycle. That we continue to use the current, already-adopted goals for 2009-2011 that were adopted in 2004.

ASSOCIATE MEMBER GEESMAN: And why should I think that that's adequate in terms of achieving all cost-effective, feasible and reliable, energy efficiency?

MS. TAPAWAN-CONWAY: Well, we believe, staff believes and it's also part of the staff proposal that we sent out as part of the pre-hearing conference notice that was sent out in February 16th, 2007. That even though these goals are, there are like countervailing reasons why these goals might be reasonable. That there are other, there are things that were not included in the potential studies that were done before which were the basics for the goals that were adopted in 2004 that could actually mean that the goals are not as high as they should be.

And there are also other market developments. Of course the current issue about the greenhouse gas and global warming. And that might also indicate that people will be doing more energy efficiency and therefore maybe the goals

are not, are higher than they should be.

But nevertheless with our proposal we still think that the utilities would still have the opportunity to use any updated market or technology information to adjust their individual, program designs and their savings target as they put together their portfolio for 2009-2011.

ASSOCIATE MEMBER GEESMAN: So the evaluation program that your commission set up in 2004 is not actually going to impact any program design until 2012.

MS. TAPAWAN-CONWAY: Unfortunately that's the reality at this point because we were very late in kicking off our evaluation activities.

ASSOCIATE MEMBER GEESMAN: Well you know for a state policy that sets energy efficiency as the number one objective in the loading order I find that profoundly dissatisfying. And I suspect that most other policy makers at your commission as well as at this one would as well. Now is there some way to correct this?

MS. TAPAWAN-CONWAY: Well we're trying to of course kick our evaluation work as fast as we could potentially do it. However there are

also evaluation results that are already being published and we expect would be utilized as we go forward in terms of our planning for the next program cycle.

So it's not true that we are totally operating in a vacuum in that sense. Because there are a lot of information out there that could potentially be utilized by the utilities and by the commission in determining the types of programs that we will be putting forth in the next program cycle.

PRESIDING MEMBER PFANNENSTIEL: Could you give us an example. I'm very interested in that. I know that there is a lot of information out there. And how are you using that to update the potential for example.

MS. TAPAWAN-CONWAY: We have tasked our consultants actually to do that as a very first step.

PRESIDING MEMBER PFANNENSTIEL: But that won't be done until this fourth quarter of this year.

MS. TAPAWAN-CONWAY: Well my understanding when we had our initial discussion with our consultant and Itron is here today who

can probably speak more about this. That they've actually done a lot of leg work, initial work in terms of reviewing what the programs have done in the past program cycle, the program results and the types of evaluation that have come in.

As, you know, a preliminary undertaking for them to look at whether or not there is some value in even changing the goals that are already out there for 2009 and 2011.

PRESIDING MEMBER PFANNENSTIEL: Well I guess my concern is that, and I share Commissioner Geesman's concern but, that when the last potential study was done a number of years ago and was done prior to AB 32 and prior to our goal of reducing greenhouse gases and as we, as is intuitively obvious to all of us energy efficiency is a lot more cost effective now if one considers the cost of carbon or the value of carbon is priced.

And so it seems like those old potentials studies wildly underestimate the cost-effective potential of energy efficiency. And it seems like something like that should be recognized.

MS. TAPAWAN-CONWAY: Well actually there

are updates to the potentials study that have been done. In fact I believe that the latest potentials study report was done in May 2006. So all of those information, and true there have been updates to the potentials studies since the ones that were used for the commission's goal in 2004. Those potential studies were circa 2002-2003. And as I've indicated there have been several potentials studies that have been done after that.

And we have charged our consultant to basically look at those information and give us their recommendation in terms of whether or not there needs to be changes to the goals going forward.

But more immediately for the 2009-2011 program, planning cycle we believe that, you know, in order to actually kick off the process for planning the next portfolio that it would make sense to just keep the goals as they are. But I have caveat though --

ASSOCIATE MEMBER GEESMAN: What if that results --

MS. TAPAWAN-CONWAY: -- that this is

ASSOCIATE MEMBER GEESMAN: What if that results in a systematic, under-investment in

efficiency? Because as Commissioner Pfannenstiel points out we now know about carbon and, you know, gas price projections are substantially higher than they were in 2002, 2003.

MS. TAPAWAN-CONWAY: Well --

ASSOCIATE MEMBER GEESMAN: Don't you end up with a mis-investment if you've not updated your goals to reflect a more current reality?

MS. TAPAWAN-CONWAY: Well I must also clarify that the proposal to not update the goals at least for the next program cycle is at this point a staff proposal. As I've indicated in my other slides there will be a series of workshop this coming May and June to basically look at the question as to whether it really makes sense to keep the goals as they are or whether there are other information that's out there that would really require that the commission re-look at the goals and change them, at least for the next program cycle.

PRESIDING MEMBER PFANNENSTIEL: And when might we get a PUC decision on that?

MS. TAPAWAN-CONWAY: As I've indicated in this light of the expectation is to have a commission decision at least for 2009-2011

program, planning cycle in September 2007.

PRESIDING MEMBER PFANNENSTIEL: Well that really won't feed into our process other than --

MS. TAPAWAN-CONWAY: Unfortunately not, and that's why our recommendation is for the CEC and maybe I can go to my last slide in response to the questions for the workshop.

Our proposal is for the CEC to maybe just take the current CPUC adopted goals through 2013 at least for your initial report in November 2007. And maybe potentially apply some common assumptions for the IOU and the POU savings beyond that through maybe 2017.

And we anticipate that as I've indicated earlier that potentially in 2008 the commission might have a decision that would adopt goals for the years past 2013 upon completion of our consultant's work and also the public vetting process that need to happen.

And in terms of the question regarding potentials study and the goals update study at least energy division staff we plan to review the methodologies that, you know, RMI or the other POUs would use for coming up with their potentials

study and to determine whether there is still any adjustment that might be warranted to apply the potentials study to the IOU service areas and perhaps achieve some consensus for a common methodology statewide.

And regarding goals update as indicated by the PUC we plan to update the goals every three years. So the next update will come in 2010. And hopefully we really want to coordinate with CEC staff in terms of the scheduling for those series of updates.

As I've indicated earlier to the CPUC's adopted goals are based on aggressive percent of economic potential. And that the utilities then prepare their energy-efficiency, portfolio filings to show how they will achieve these goals. And that the portfolio must pass a TRC test of cost effectiveness.

And with that I conclude my presentation unless you have other questions.

Advisor Tutt: Zenaida I do have one question related to the planning process for '09-'11 goals. There has already been a scoping order that PUC put out in a series of comments that proceed from parties. Can you summarize those

comments in this regard or is that not today?

MS. TAPAWAN-CONWAY: Well I think in terms of the goals per se for particularly for the next program cycle which 2009-2011 there were like one set of parties say that we need to update them, particularly the utilities. They're saying that, you know, we have to really look at current developments and really reset the targets for them for this next program cycle.

On the other hand other parties like DRA and I believe TURN also agree that maybe we can just keep the targets as they are but then focus our attention to really looking at what types of programs we can deploy out there in the next program cycle that would really maximize achievement of these targets.

Advisor Tutt: And Zenaida is it fair to say that the utilities that are actually interested in lowering the goals, they think they're too aggressive?

MS. TAPAWAN-CONWAY: I believe that's what they said in their long-term, procurement plan. Although I think PG&E and San Diego basically just used the goals that we have for them in their procurement plans.

Advisor Tutt: And one last question. Another part of this process is consideration of big, bold ideas. And there's going to be workshops on that.

MS. TAPAWAN-CONWAY: Yes.

Advisor Tutt: Can you, will that affect the goals if those come to some degree of programming fruition or design.

MS. TAPAWAN-CONWAY: I presume potentially as I've indicated, I mean our proposal to leave the goals as they are for '09, '011 is really just at this point a staff proposal. And it's really the commission eventually making a decision once the record is established through this workshop process that's being laid out in that scoping ruling that was issued April 13th.

PRESIDING MEMBER PFANNENSTIEL: Actually I have a question for Eric. where is NRDC on the question of updating the goals and how to update them?

MR. WANLESS: I'm going to have to defer that question. Audrey Chang is the person on our staff who prepared those comments. So I can check with her and get back, have her get back to you.

ASSOCIATE MEMBER GEESMAN: Well I would

thank you for coming. And certainly your work jointly with our staff is appreciated. I do think in a system as this commission has commented previously in our IEPRs that seemed blithely indifferent to fuel cost pass-throughs and the extraordinary inefficiencies of our existing fleet of aging generators.

Ratepayers are entitled to a more aggressive approach using the most up to date cost assumptions in planning the appropriate level of investment in energy efficiency.

And laxity in this area I think carries with it significant economic costs as well as environmental costs. But significant economic costs to ratepayers.

And I think the legislature has obviously prioritized efficiency. This commission and the Public Utilities Commission had every opportunity of attempted to proclaim efficiency as our top priority. And I think we need to adjust our programs to reflect that.

MS. LEWIS: Our next speaker is Jim Parks from SMUD.

MR. PARKS: We're happy to be available to address the commission today on the

requirements of AB 2021. And from a municipal perspective I just want to give some oversight as to where most of the munis are coming from.

I would say that from a starting point that these are mostly SMUD comments. I talked to Scott Tomashefsky of NCPA and he agreed with the comments that I have in the slides. So I can say that they'd be representative of Northern California.

I would also submit that I don't see any reason that the rest of the munis would disagree with the comments that I have today.

I think it's been mentioned already that there 39 publicly-owned utilities in California. They're run by publicly elected boards or city councils and they respond to their constituent base just like any elected official.

And they're very diverse ranging from very small. We have municipal utilities with under 600 customers. SMUD has over 500,000 customers and LAWP many more than that. They range from rural to urban and cover all different types. Some of them are mostly commercial, mostly residential, mostly agricultural and then any combination of all of those. And so they're just

very diverse.

So I think that when you're looking at the potential to achieve energy efficiency you're going to find that that's also very diverse based on their size, their customer base, climate zone, past energy efficiency programs and so forth.

You've already discussed this. The utilities need to develop a potential study every three years and adopt ten year targets by June 1st.

SMUD is on track to do that. We would expect to submit to the CEC by August 1st and then report annually to the Energy Commission.

The CEC needs to take those targets and the basis for those targets and review the information and clarify issues and concerns with the appropriate entities, receive and review annual reports and then report out to the utilities, governor and the legislature. And then incorporate those results into the IEPR. These are things I think we've already discussed this morning.

I did want to talk a little bit about the expectations of the publicly-owned utilities. We would expect this to be a cooperative effort

between the CEC and munis. I think that kind of goes without saying. I don't think we're going at this as if it's going to be an adversarial thing.

So a reasonable review and discussion of goals and results, definition of reasonable. You know, I mean I think that we're just going to get together at the table, we're going to talk about these things and I think it will be a reasonable discussion.

We would like to see standardized reporting formats whether we adopt what's happened with the IOUs or something different. I don't know. But I'm personally a big fan of statewide consistency where possible.

Consistent review of goals and results. I kind of equate this back with an experience I had when I remodelled my kitchen. I had one building inspector would come out and go you need to do this, this and this. And I would do those things, call for another inspection. And a different guy would come out and go, oh, well you need to do this, this and this. And I felt like, look, send back the first guy. I don't want the second guy telling me to do a whole new list of things. So we'd like to see consistency.

We'd also like to see a point of contact at the CEC. You know it's better not to work with 20 different people because you fall back into the same thing I just talked about where there's different expectations.

And then the regular meetings to discuss the goals and issues, expectations, results and recommendations.

And then lastly discuss those recommendations and time to work on solutions prior to the report to the legislature. I see the CEC is going to take a look at our annual reports and our goals at some point. And they'll report back to the legislature. If there's issues that need to be addressed we'd like the opportunity to address those issues before the report goes out.

So the recommended approach here, I don't think the Energy Commission wants to work individually with 39 entities. And there are four entities that naturally fall out of this.

The Southern California Public Power Authority or SCPPA, Northern California Power Agency or NCPA, Los Angeles Department of Water and Power and SMUD. And I think that it will be a lot easier on everybody, the CEC will get four

sets of goals and annual reports.

But I would expect that you would see the individual utility goals and results in those but in the executive summary. It would kind of be in a combined format to say, hey here's what we did as an entity.

It allows the munis to work together to set targets and provides opportunities for portfolio synergies among munis. In other words we could have programs that are targeted at more than just one muni. It aggregates the smaller munis with the larger ones and it should minimize the effort of the CEC while maximizing the benefits. And it would also streamline your review and comment process.

Just to signal where SMUD is at with this. We presented this to the board on Tuesday of this week. And if you look at the first column our current goal is about .6 percent of our projected sales. And we spent 25 million dollars to achieve that.

And we didn't really present this as an option to the board, we really said, hey here's a goal of one percent and here's a target of one and a half percent of projected sales. And the board

is considering that. And we expect that they'll adopt either the one or somewhere in between the one and one and a half percent by the deadline in June. And then we're going to forward those goals to the Energy Commission in August.

In response to the questions specifically that the commission asked. Question one, how should the Energy Commission incorporate the energy-efficiency targets? I would submit that they should use the goals that are submitted by the investor-owned utilities and the goals that are agreed upon between the CEC and the munis.

We did that, I mean that's just too simplistic on my part. And then maybe we need to meet together as a group. Maybe we're going to have joint meetings with the IOUs the PUC and the CEC and SMUD, I mean the munis, sorry.

How should the 2021 targets interface with the other goals? I think that greenhouse gas benefits through energy efficiency should definitely be incorporated in there. I'm a big believer in incorporating the environmental externalities into the cost, the avoided cost and so for energy efficiency providing an adder if you will to energy efficiency to make it more

beneficial.

I don't see any link to the renewable portfolios standard. I think those are two separate things. I think we need to achieve our renewable portfolio standard and energy efficiency separately.

Number three I think the target years should be 2008-2017. I go in the middle at 2007. It's a little too late to incorporate that into this so I'm submit that we should move it out to the next year.

Number four, how should the three year update cycle synchronize with the biennial IEPR cycle? Good question (laughter). I don't really know but I think that at some point the three year cycle of this PUC should mesh with the muni cycle. How you do the IEPR thing I'm just really not clear. Maybe you go to a three year cycle. I don't know. But I think that the munis and that you should mesh.

Right now we're on a different cycle based on the track we're going on. And I think they should be coincident.

And then lastly, what metric should the Energy Commission use? This is, I mean all these

things are great ideas. And from SMUD's perspective we've looked at the percent of economic potential. We were under the impression at least the investor-owned utilities were using .7 percent of economic potential as their target. And so we were looking at that.

We also looked at it as a percentage of sales as you see from this slide right here, the one percent and the one and a half percent. Energy investments as a percent of revenues, I don't think that's necessary. I think if you're doing either the percent of economic potential or percent of sales, I don't think you need to worry about the percent of revenues as part of energy efficiency for budgeting purposes.

Of course the energy efficiency should be cost effective. And I believe that we should use a standard test for cost effectiveness. I think that the munis should use the same tests as the investor-owned utilities myself. The inputs into that are going to vary though depending on the utility. And that's where you're going to have some potential for confusion. And, that's it. I'd be happy to take any questions.

PRESIDING MEMBER PFANNENSTIEL: Jim do

you, have you calculated your economic potential? I see you're using percent of sales but is that, why did you use that and not economic potential?

MR. PARKS: We did look at the economic potential. And we looked at 70 percent of economic potential. And I don't remember the exact number but it was somewhere in between the one and the one and a half percent. And so we kind of did a variety of factors when we came up with the one percent.

Though the one percent kind of came from the legislative intent of AB 2021 to achieve ten percent over ten years.

PRESIDING MEMBER PFANNENSTIEL: I see. And where did you get your economic potential? Who did that and was that based on a carbon constraint world or not?

MR. PARKS: The potential study was done by Itron, the same group that did the statewide potential, the IOU potential study. And they used the same methodology as used the statewide potential study.

I don't know how carbon was factored into that.

PRESIDING MEMBER PFANNENSTIEL: When was

that done?

MR. PARKS: We just finished it in I think it was October of '06. And we're updating it right now. And so from our perspective we've kind of met that first hurdle of the legislation to complete a potential study. And we would not expect to do another one for three years.

Because it's actually still in progress. I wouldn't call it complete right now.

PRESIDING MEMBER PFANNENSTIEL: It's been done and now you say you're updating it. I mean I don't understand what's, why --

MR. PARKS: Well some of our avoided costs were not included in the original study. And so we're looking at that and then some of these other factors like the greenhouse gas and so forth. So I would expect to have those results within the next month.

PRESIDING MEMBER PFANNENSTIEL: All right.

MR. PARKS: Because we need to finish that before we go to the board with the final recommendation in May.

PRESIDING MEMBER PFANNENSTIEL: Great, thank you.

ASSOCIATE MEMBER GEESMAN: I've got the same three basic questions that I had for Mr. Wanless. Looking across the 39 munis and let's assume that the expedient way to address it is through core reporting groups. Should the Energy Commission have the expectation that there is some commonality in gas price forecasts across those four groups.

MR. PARKS: No. I would expect them to all be different based on the long-term contracts they have in place and their own projections. And I would expect that they actually are different. I don't think it's a consistent price.

ASSOCIATE MEMBER GEESMAN: And how should we deal with that?

MR. PARKS: Well I would maybe a weighted average. The munis are all different. Maybe you take all those different forecasts and you weight them based on the size of the muni, their expected usage and just have a weighted average.

ASSOCIATE MEMBER GEESMAN: Should there be a social, discount rate employed or should we go with a cost of capital discount rate?

MR. PARKS: Social discount, do you mean

like externalities that you incorporate into energy efficiency?

ASSOCIATE MEMBER GEESMAN: In our building standards we discount future costs and benefits at a three percent rate which we characterize as a social, discount rate.

MR. PARKS: I would be in favor of incorporating that in there to the extent that it's going to enhance energy-efficiency programs and increase the amount we do.

ASSOCIATE MEMBER GEESMAN: What about time of delivery?

MR. PARKS: Are you talking TOU and real time pricing?

ASSOCIATE MEMBER GEESMAN: The value of a kilowatt hour saved presumably is different.

MR. PARKS: Absolutely I think that should be incorporated because from SMUD's perspective we're a summer peaking utility and the time that we deliver electricity has a different value. No doubt about it.

ASSOCIATE MEMBER GEESMAN: And finally I do have a fourth question for you Jim. What weight should we place on the legislative intent goal that we be on a trajectory to reduce total,

forecasted, electrical consumption by ten percent over the next ten years.

MR. PARKS: It depends on your definition of, I mean I know what ten percent over ten years means. No doubt about that. But what you're factoring into that is the question.

Are you incorporating, is that just a utility goal or does that factor in Title 24 and things like that. Is it an over-arching goal? And that's --

ASSOCIATE MEMBER GEESMAN: My presumption is that it's an over-arching goal.

MR. PARKS: Yeah and see on that basis SMUD kind of said, okay we're going to try to do at least one percent per year which is probably more than we need to do because there's going to be changes to Title 24 that are going to enhance efficiency beyond that.

ASSOCIATE MEMBER GEESMAN: You think these programs should be evaluated on a trajectory that achieves that target however ten percent is defined.

MR. PARKS: I do.

ASSOCIATE MEMBER GEESMAN: Okay. Thank you.

MS. LEWIS: Commissioner Pfannenstiel would you like to take comments from the audience or pick up the phone now?

PRESIDING MEMBER PFANNENSTIEL: Audience is a good idea. Are there questions of this panel from the audience or on this subject, comments on this subject, either from the people here in the room or on the phone? On the phone.

MS. VALENCIA: There is a person on the phone.

PRESIDING MEMBER PFANNENSTIEL: Why don't you have them go ahead and, okay.

MS. LEWIS: Would you tell us who is ready to speak.

MS. VALENCIA: His name is Greg Donald from Navigant Consulting, he's on the line.

PRESIDING MEMBER PFANNENSTIEL: All right, thank you.

MS. VALENCIA: Hello, he's waiting? He's not responding.

PRESIDING MEMBER PFANNENSTIEL: All right is there anybody in the room then who'd like to address this panel or make comments on this subject? If not why don't we move on the next panel. I want to thank this panel. I think it

was a really very useful beginning of our discussion. We've heard a lot of information. Thank you very much.

MS. BENDER: Gary Klein is going to be the leader of my second panel. Our panelists you'll see here so we'll ask them to come up and take their seats at the table at this time.

MR. KLEIN: Good morning commissioners. This topic is to discuss current potential studies of both the IOUs and the POUs. And in particular to get at similarities and differences between and among them.

Determining all potentially, cost-effective, energy savings requires a framework for analyzing the cost effectiveness and the input assumptions. We've had speakers this morning from Rocky Mountain Institute and Itron who have been working with both the IOUs and POUs to help with them the studies that are going on right now in order to meet the goals of AB 2021.

And we want to focus today's discussion on the similarities and the differences. We have four speakers for you this morning.

Scott Tomashefsky is regulatory affairs manager with NCPA. He's going to be discussing

the public power perspective on aligning the statewide, energy-efficiency goals.

Mike Rufo with Itron is going to provide observations on their experiences with a variety of energy-efficiency, potential studies. In particular this morning on those related to the IOUs is what we've asked him for but clearly you are going to have questions about the work he's doing for POUs.

Brian Horii from Energy and Environmental Economics has been asked by the CPUC and us to help answer questions related to avoided costs and what might be included in these studies.

And John Anderson with the Rocky Mountain Institute will bring us up to date on their work assisting 35 of California's POUs in preparing their potentials studies for AB 2021.

So with that Scott it's yours.

MR. TOMASHEFSKY: Good morning Chairman Pfannenstiel, Commissioner Geesman, advisors. I always find it a pleasure and a privilege to have us come back here and have a conversation or two or three.

My role on this panel this morning is almost to set up context more than talk about the

specific methodologies. So what I want to do at least for a few minutes is just share some of the perspectives in terms of dealing with energy efficiency and what we've been able to accomplish the last year, year and a half or so in terms of what has been said and where the things are going in just respect to the public power community. I did want to acknowledge.

ASSOCIATE MEMBER GEESMAN: Excuse me is your mic on?

MR. TOMASHEFSKY: It is actually, I'll move over closer if that works.

ASSOCIATE MEMBER GEESMAN: It is on, okay.

MR. TOMASHEFSKY: Does that work a little bit better for you?

ASSOCIATE MEMBER GEESMAN: That's better.

MR. TOMASHEFSKY: Okay. What I do want to do though is I want to acknowledge the collaborative work not only among the public power community with our agency and Northern California Power Agency but also SCPPA and MCUA. It's been a very interesting process.

So if you think shepherding through

three IOUs is an interesting process try 40 publicly-owned utilities. We have not done this traditionally so it's been a work in process and not only do I appreciate those efforts, I do appreciate the input that we've had from the commission over the last year. Especially Silvia on this particular effort. Good discussions we've had for the past six months.

And what I want to do is I want to take you back to probably about two years ago. And this goes back into the last IEPR. A couple of interesting findings through all of that.

Part of which is built on the fact that a lot of the public utilities were not in this building traditionally telling our story. So some of the comments that you see up on there are reflective of the fact that only 13 publicly-owned utilities really filed any information here prior to 2006. Prior to the adoption of the SB 1037.

And so there are somewhat different perspectives you'll get based on the information that's there.

And that also holds true with the California Legislature. And really that was part of perhaps what's in the last comment about

creating an efficiency, reporting requirement which was adopted in the 2005 IEPR.

We took that to heart and started a conversation at that point to try and establish how we could make that work not only from our perspective of herding the cat of all the utilities but also making it presentable enough so that you can actually do something with it.

Next slide please. So just to step back, just to make sure we're all on the same page in terms of public-power viewpoints. There's a couple of important elements here that are worth noting.

The first one is fairly straight forward. It's common sense. We do follow the loading order. Not only is it required in terms of considering all cost-effective, energy efficiency first and foremost. We're doing that. We do it at the local level so there's a little bit of I guess things we need to do to make that actually work. And so what works for DWP does not work for the City of Healdsburg necessarily. It does not work for SMUD even for that matter. It doesn't work for Modesto.

We all have our little, different

nuances. The key objective though is we consider this stuff. We take it seriously. And if the state's objective of dealing with the reduction of fossil fuel generation and conservation is important to all of us. We do follow that.

Think of it from the perspective if you were PG&E and you were looking at your 35 counties that PG&E represents. If they were all treated differently they would have very different perspectives. So an air conditioning program in Portola or in Quincy doesn't necessarily work the same way as it does in Tulare. So you have very different observations about how you would apply your efficiency programs. And those are the things that we have to deal with at the local level.

The programs as far as comparability, I think when you look at who are running the programs. I talked to my friends from Edison and they tell me that they have a difficult time trying to figure out how they're going to implement 80 programs with the three year cycle.

The difference in their issues are not different from any local utility. It's just the scale. We're all dealing with lighting programs

and air conditioning programs. It's just how we make it best fit for our constituencies.

The third deals with operational efficiency. And a different firm perhaps Eric's comment earlier in terms of how operational efficiency may fit in there.

To us it's paramount that when you're talking about procurement dollars you have to step back from what was meant by the definition of procurement. In the IOU sense when you're looking at load growth of a thousand megawatts a year, you're looking at one to two power plants a year, 600 million dollars approximately and investment. So the question becomes how you defer those investments.

When we look at those types of generation investments we're looking with utilities that have loads of 50 megawatts. So we're not making hundreds of megawatt investments. We're making investments on the kilowatt perspective. So your generation investment is much different.

So then you have to step back and look at what the intent of using procurement dollars. And when we look at those things we look at it

from a standpoint of operational efficiency.

And so when you're looking at things like replacing transformer, T&D improvements, those types of things decrease the amount of generation you need to provide your customers. And so from that perspective it allows us to apply the logic of using procurement dollars which is very important when you look at how that fits into public benefits programs.

So if you restrict it in terms of how you fund your energy-efficiency programs, a combination of procurement dollars, how we define it which would be generation. You know the T&D type enhancements plus their traditional, demand-side programs really fits the equation.

So a little bit of a twist on it but it accomplishes the same objective.

And then finally program sustainability. Which I think kind of characterizes as being inversely related to the size of the utility. If you're a 600 customer utility you hand out your two light bulbs to every customer. Next year's program, you don't really have that option available. So you're constantly looking for different ways to deal with your efficiency

programs.

And those are the types of things we struggle with. And so we're constantly looking towards changing. And so the dynamics of our program development is different.

Next slide. So just one more slide of general context and then I'll probably talk for a couple of minutes about what RMI and E3 and others have done for us and how we're moving forward. Again prior to SB 1037 which was October of 2005 there really wasn't much data that was being provided to the CEC. It was limited to the 200 plus, 200 megawatt plus utilities.

1037 comes along and we have lots of discussions here and we develop a report with a lot of feedback between the commission staff and the public utilities to come up with a report that we put together in December of last year. That's part one of the equation.

So part one is, we don't what you're doing. Tell us what you are doing. Part one gives us a snapshot of what your programs look like right now.

Part two is what we are dealing with now which is, let's figure out what those goals and

targets might be. So when people start saying, we should be spending our dollars on x, y and z the answer hasn't quite been reached yet.

We need this probably more than you perhaps do at least for this initial run because many of the smaller utilities have not looked at efficiency, program development in the same way that we have been looking at it at the state level. So it gives us an opportunity to not only put our programs on the right course but then it allows it to get very much in synch with the direction of state policy which again is what we're all looking to do.

So that's what we're attempting to do with the work of RMI and Itron. Next slide.

So what we've done at least for this particular effort what we said is that if a lot of the smaller utilities are not going to have the expertise to do this. Again it's the same concept that we used with the efficiency, program development, when E3 was helping us develop a model for charting progress and measuring savings.

We basically said, let's take those utilities that have not done an integrated assessment and give them an opportunity to get on

the same page in terms of establishing targets. Help us meet those objectives. What's key to all of this at least from our perspective is the timing of the statute the way it was written initially required us to give you information by June 1st which we would not have been able to do the analysis.

So we could have given you information but it would have been the garbage in and garbage out approach. And we said, let's have a little bit of leeway given towards that. So what we did is we talked with you and staff. We talked with legislative staff to Assemblyman Levine's office. We talked with NRDC. And we talked with others. And we basically got the governing-board, approval date to be moved back from June 1st to September 30th.

So what that does is it gives us an opportunity to provide you data by the end of June which is not fully baked but at least preliminary enough that it's going in that direction. It has the technical expertise of RMI. So you've got a third-party, independent evaluator of our programs just in general.

And it allows us to start the process

for having our governing boards review this information. So that fits into your schedule in terms of these four workshops you have scheduled.

And then what it also does it allows us to give you the final adoptive targets that the governing boards provide in advance of you adopting the IEPR in November. So it fits in with your cycle. It allows us to get a little bit more granularity to our data. And then get a lot of the utilities that have never established targets data that's credible and something that works.

So that's kind of our plan. The last slide or two really deals with partnerships that we have. As I've said before, I personally have really appreciated the opportunity to be able to kind of serve that liaison role between the commission and the public-power community.

But also at the same time its given us an opportunity to talk from the same page. So that even as Jim had mentioned in his earlier talk today we didn't really talk until late yesterday. But yet we're generally in alliance in terms of our positions.

And then that's generally the case within the public-power community that we're all

on the same page. And we understand the objectives. And we're all really focusing on meeting statewide objectives. We just need to be able to find a way to mesh that with the local, decision-making process that our local, governing boards have.

So it's important to understand that. It's also important that we continue to talk as a group of 39 or 40 utilities.

And just to give you a flavor of, next slide. Just to show you where these utilities are participating in. And I know for those of you on the dais you understand where these public utilities are. But it's always good to kind of see where they fit in. It's northern, southern and what we classify as the CMUA/Other category are some of the smaller utilities with the exception of perhaps Modesto.

There's a lot of communication that goes on among the public-power community as much as we can. So even when we don't necessarily show up at a lot of workshops we are definitely paying attention and trying to make those things work as best for you.

So what you'll see and RMI will talk

about the stuff we're doing for the 35, 34 utilities. I'll just note that not only is SMUD with their particular analysis, DWP has done one. Itron has done that for them as well. Palo Alto had one done by RMI that was completed about a year ago which will feed into this as well. And then Redding is having one done by Nexum which will feed in right around the later part of June. Santa Clara is doing one separately and they're also participating in this analysis.

So my final slide really is looking at the results and as those of you that know I kind like to play around with PowerPoint quite a bit. So this is my opportunity to be somewhat creative. So the notion of the report we issued in December, we will have a target report in June. And then we'll provide you an update in September/October. And that's all I've got to say so thank you.

PRESIDING MEMBER PFANNENSTIEL: Thank you Scott, very, very helpful. I want to stress something that I know you know and but we need to say this.

First of all I really appreciate how creative you and I think everybody has been in terms of getting a, finding a schedule for getting

us the information on a schedule that will work for you and that will work for us.

But having said that we are kind of hung out there for those three months. So we'll be working off of your preliminary information. And then what the governing, if what the governing boards adopt at the end of September differs very much from what we're working on at the end of June this really breaks down badly. So, you know, that time becomes really critical that we work very closely together. That what we get at the end of June is close enough that we can really rely on it for our analysis.

MR. TOMASHEFSKY: I agree with that and I think if there's any suggestion that there might be some significant differences we'll give you as much of a heads up as we can.

PRESIDING MEMBER PFANNENSTIEL: And then in terms of the governing boards adopting, any chance that for some of the bigger POUs, the ones that are doing separate reports, those will adopt before September 30th?

MR. TOMASHEFSKY: I'd like to think so. I certainly can't speak for DWP. I mean I think Jim has suggested that they would be adopting

before June 1st.

PRESIDING MEMBER PFANNENSTIEL: Right and Jim did say that.

MR. TOMASHEFSKY: We'd like to get that to you as closely as possible. And really the notion behind, they were already moving along much earlier. I would hope that we'd be able to get that to earlier. But, we can certainly go back and check. I think Palo Alto is certainly on board with that. Santa Clara since they're participating in this analysis and they're doing one as well, you know, probably won't be the case.

PRESIDING MEMBER PFANNENSTIEL: All right, thank you.

ASSOCIATE MEMBER GEESMAN: Scott I don't think I understood the reporting ramifications of your comments on operational efficiency and improvement. I wonder if you could elaborate more on what you meant there.

MR. TOMASHEFSKY: Sure. From the notion of my understanding of the statute the restriction on the use of public-benefit dollars to fund future investments in energy efficiency. There was a desire to insure that future generation was being deferred for purposes of just building

additional, efficiency programs.

Now if you look at the issue where we're constantly having to deal with program changes and program saturation there are instance in some utilities where some of the efficiency programs may not, the cost-effective criteria may be somewhat different than, might be quite a bit lower than you might think. And therefore the amount of achievable, energy-efficiency program within those particular utilities might be, it might not be quite as ambitious as one might think.

So in that line you have an opportunity to deal with efficiency improvements on the operational side. So there's, I guess, if you want to coin them as supply-side improvement. If you've got distribution-line losses that are in the six to seven percent range and you can reduce that to three or four percent you then have the advantage of reducing the amount of generation you need to serve your customer base.

Taking those credits in this context may be different than what's happening within the IOU community.

ASSOCIATE MEMBER GEESMAN: And you would

envision some of your utilities reporting those particular investments under this efficiency program that you're referring to?

MR. TOMASHEFSKY: Absolutely, absolutely. And then what our challenge would be is to see how that would fit best into the reporting mechanisms we've had before.

We can probably make that fit within the E3 model that was created, maybe Brian can confirm that for me. But there is flexibility to customize information within those models so that the reporting element of it is still consistent.

What you put into it would just have to be explained a little bit more so.

ASSOCIATE MEMBER GEESMAN: And you think that the statute provides you with the flexibility to take that approach?

MR. TOMASHEFSKY: We're taking that approach.

ASSOCIATE MEMBER GEESMAN: And for us then to try and put the efforts of the investor-owned utilities on a same page basis would we then have to pick up their various investments in distribution, system improvements or transmission line reconductors?

MR. TOMASHEFSKY: I think it's something that needs to be part of the global policy discussion. And as we heard earlier there's concerns about having targets be too aggressive.

One thing we've tried to do through this entire approach is try to be as realistic as possible in terms of how we're addressing the information that we're not only going to provide but the efficiency saving that we report.

There's a lot of distinction between whose taking credit for what. Whether sitting at the table for Title 24 development as part of that, how do the third-party programs play into that?

It's really something that I would suggest as we consider this a, of primary importance in state policy. I think it's a perfect topic for a 2008 update. That if you're going to look at some issues, there's a lot of outstanding things in terms of data collection and how this all fits together that would probably warrant a very, good and series of discussions on those topics including cycles and other things.

ASSOCIATE MEMBER GEESMAN: How many of your utilities do you envision including these

distribution-system improvements under the efficiency reporting?

MR. TOMASHEFSKY: We did not do it in the 2006 report. We mentioned it in the 2006 report and provided some examples of some of the savings. But none of the numbers that you see in that initial reporting include any operational, efficiency improvements.

I would suspect we would see a lot more of that for the next version of that report. And then we'll also incorporate that into how we deal with our target setting.

ASSOCIATE MEMBER GEESMAN: I have to tell you that my initial reaction I've not looked at statute but my initial reaction is that this sounds a lot like the dialogue that went on for a number of years in the municipal-utility community about we ought to be able to include large hydro in our RPS goals.

And I think that it is a path that has some perilous aspects to it.

MR. TOMASHEFSKY: And I agree and this might be the agency that really should look at those issues and have those recommendations built into even the 2007 report.

PRESIDING MEMBER PFANNENSTIEL: Scott is this just NCPA or the whole, muni community.

MR. TOMASHEFSKY: No, I'm here to represent the entire, muni community today.

PRESIDING MEMBER PFANNENSTIEL: I might suggest that maybe this needs to be taken up off-line that if you do intend to report those you'd better separate those out in a report so we can clearly see what is essentially demand side and what is operational efficiency.

MR. TOMASHEFSKY: Yeah, we fully expect to do that.

ASSOCIATE MEMBER GEESMAN: Scott one other question related to that. Did I understand that the procurement dollars were limited to the operational, efficiency, supply side and wouldn't be spent on demand-side measures?

MR. TOMASHEFSKY: Well no you can still spend it on demand-side measures. But it goes back to that construct of if you're constantly taking program, if you're looking at long-term, program design and you're saturating your marketplace, the opportunities of using some of those dollars for operational enhancements is another way of really meeting your objectives on

conservation.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. KLEIN: We're ready for our next panelist. It's Mike please.

MR. RUFO: Good morning commissioners. Thank you very much for the opportunity to address the panel today. I'm going to give you a few thoughts on potential studies and then look forward to answering your questions.

Next slide please. This slide I'm not going to walk through it. Just setting some context on some of the studies that have been done in California since the time of the energy crisis.

And lots of other studies have been going on around the country. And there's probably been a few other studies in California that I've missed.

I did want to just make sure that everybody has kind of the same frame of reference for some of the studies that were done in this period and which ones affected the establishment of the PUC goals indirectly I should say.

The first two bullets there, studies in 1000 and 2001 for the IOUs managed by PG&E that

KEMA-XENERGY conducted. I love those studies with Fred Coito who is at KEMA. And those studies were done before anybody asked for potential studies. Chris Anne Dickerson at PG&E at the time I think had the foresight to see that the energy crisis was going to lead to a lot more interest in energy than there had been in the period of say '98 to 2000.

So then that work was built on by with support from the Energy Commission. Commissioner Rosenfeld wanted to expand that work and refine it with respect to residential efficiency, supply curves. And the Energy Foundation came and felt that they could add value by filling out a few pieces of scope that weren't addressed in the first study there.

Again with the recognition that there was going to be a hunger for some of this information very quickly which was in fact the case.

Those studies then informed the staff, joint staff paper that was part of it. I think the first IEPR and Energy Action Plan and ultimately fed into the PUC goals.

I'm not going to go through the rest of

these. They're various updates of different studies in California. Some of them have already been mentioned today. We can come back to those as appropriate.

Next slide here, a few study scope issues related to some of the questions. I don't want to beat these things to death. Some of them are very obvious in terms of when you're doing these studies on the ground what sectors are you looking at, what vintages, end uses, measures.

Key scope questions as often measures being analyzed, those that are just currently available. Do they include emerging technologies. Do they include both? Are they widgets hardware or are they also practices with them both. Are they just efficiency kinds of action or do they include conservation behaviors which most of the studies I've been involved in don't include long-term changes in conservation behavior.

But that's something that is very important which I think we'll have a talk about. I'll talk it some more in a little bit.

Something that doesn't get talked about enough, constant or non-constant energy, service, level assumptions. So most of these studies I

think just because of their context and scope tend to take the energy, service levels as a constant. And I can get back to that point in a little bit. But it's also very important in this discussion.

You get into issues of do all the energy-efficiency measures that we're looking at have equivalent levels of energy service? You know, direct evaporative cooler, does that have an equivalent level of energy service to central, refrigerant, air conditioner?

Also energy, service levels are changing over time. Illumination levels are going up, home sizes are going up. How do those factors take into account, if at all, generally haven't been in most of the recent studies.

This also relates to base-load forecasting. We have a tendency to just take the base-load forecast and say they're a given and we just adopt savings off of them. There are probably some serious issues there that we need to talk about aggregate load doesn't matter in a greenhouse gas context.

What's the time horizon for the studies, 20 or five year, ten or twenty year or fifty year. Now we're working with the commission on some

long-term scenario analysis that goes out a lot further.

Most of the studies event these, they talk about a 10 year forecasting horizons more or less.

Some issues related to methodology is market saturation data, kind of a key driver to the methodologies or are kind of simplified prototypes used to extrapolate the populations or it's some combination of both. There are issues there.

Are all the underlying data used for estimating cost effectiveness and economic signals to consumers, are those baseline estimates calibrated to something? If you just run a simulation model for California air conditioning you will overestimate actual air conditioner consumption several fold from what you see in actual bills because of the effect of the behavior.

Avoided cost elements which I guess Brian will talk about but I'll have some comments on that later. What elements were included in avoided costs and what were the general levels of avoided costs that kind of set the benchmark in

the various studies.

How are changes in market barriers and costs and savings handled over time? Most of the studies really don't handle that in a dynamic way. It's fairly static. It's hard to accommodate those things in a lot of these modelling efforts. Not that they can't but I think most of the studies that have been done recently haven't been dynamic over time with respect to those super, critical dimensions.

Stock accounting and adoption modelling, I'll talk about those more later. And Kind of the last bullet is, you know, what's the orientation of these types of study.

It's, you know, often driven by the scope and by what the funders objectives are. But for myself as a consultant that has been doing these kinds of studies for 20 years I think I always try to adopt an expected, value orientation and try to avoid a systematic bias.

I think it's very easy to have a systematic bias in this type of work. There's a lot of uncertainty that we can talk about.

So we all bring different perceptions to this work. And I really try to work on myself and

my staff and others to try to separate what's empirical and what's judgement. Because this work for forecasting behavior adoption there's inputs that are empirical and there are inputs that unfortunately we don't have as an industry enough empirical data to allow the kind of forecasting that we're trying to do. So judgement comes into play. So we all need to be clear about kind of where our assumptions are.

It's fine to be conservative some times and it's fine to be aggressive some times. But I think mostly it's important to be transparent and clear about assumptions.

Next slide. I don't think we need to belabor the next two slides. Well this one is just to illustrate that the studies that I've been involved with use bottom-up models that try to draw in as much empirical data as possible about the market.

And it all starts with how well do we know the market today. And unfortunately as an industry for the last 20 years I think we've under invested in understanding end-use markets and end-use consumption.

So we've spent, you know, billions of

dollars nationally on energy efficiency but we've tended to under invest I think in basic understanding of end-use saturations and shares. And I would commend the commission on its investments in maintaining end-use forecasting, doing the statewide Seuss and Rath Studies.

They're extremely important. Without those studies right now I think we'd be driving extremely blind. In most places in the country you have nothing like that. And I think we need more of it.

We can go into the next slide. I think issues related to all the various multitude of inputs that come in these bottom-up models will be addressed as appropriate through your questions.

I'm sorry let's go back to the one on, yeah. The issue here, this slides focussed on adoption modelling. And with respect to the question about definitions and assumptions I think we as a consultant and a broader, industry policy, energy-efficiency, policy community I think there's general agreement about the basic concepts of what's technical potential, what's economic potential mean, what's achievable potential mean or market potential, program potential.

When you get into below economic the terminology starts to move around a little bit more but generally at a general level I think people mean similar things when they talk about achievable, market, program potential.

But there are a lot of differences below economic potential in terms of the modelling and assumptions that go into various forecasts of whatever we want to call it, achievable market or program potential.

And the work that I've been involved in, you know, we've tried to look very hard at all the different pieces that come into play when you're talking about achievable potential which gets into forecasting consumer adoption and user adoption.

So we look at things like, you know, what's the feasibility of the measure from an engineering point of view? What's the availability of the measure in the market? If it's not available you can't adopt it. What are awareness levels of consumers. Can't adopt unless you're aware and knowledgeable.

Once you meet all those criteria you have aware and knowledgeable consumers who can for facing a decision then they make a decision. They

adopt or they don't adopt. And based on what they adopt or they don't adopt based on economic and quote unquote non-economic factors though economists would not like that characterization. But just for ease of simplicity when I say economic factors we can model adoptions as a function of a participant's benefit-cost ratio, a payback, whatever but we know that we don't explain very much of the observed behavior and adoption with just economic those types of readily, accessible, economic parameters. There all kinds of other factors that are affecting decisions both more efficiency and less efficiency.

Generally historically it's been less efficiency those sort of these so-called, market barriers which are not very well understood in terms of adoption and how to mitigate that.

Okay, next slide. So I think some of the strengths and weaknesses in the current studies of the group of studies that I showed in the first slide is they work very hard to use market, saturation data. They use stock accounting models. They have very good organizational frameworks for managing data.

They've, folks have been working hard to calibrate these forecasts to actual program and market accomplishments. Savings have been tracked well over time. And the modelling processes used, once the data is all set up they're very data intensive processes. But once you have everything set up it's fairly easy to run scenarios.

Some of the weaknesses I think in these studies and my comments on weaknesses really go to all studies in the field. I haven't seen any studies that don't have these weaknesses in energy-efficiency, forecasting, potential estimation.

We just don't have as an industry all the data that we would like and the level of accuracy we would like. And we never will. I may sound like a consultant's cry list but I think it's important from a policy perspective to have a discussion about these things.

There are a lot of challenges associated with how measures interact and how you model that. As I was just talking about the effect of economic versus non-economic factors. How you model or don't market effects over time or mitigate market effects. Or how you create market effects by

mitigating market barriers.

Out-of-sample programs, and what I mean by that is where an environment clearly for the last five years where from my perspective having been through the peaks and valleys in this industry we've gone from kind of the, oh yeah that's nice you do energy efficiency to, hey energy efficiency, we want it. We want lots of it as soon as possible.

So we're forecasting that out-of-sample because but the programs and the as in any forecasting process we're looking backwards to try to understand behavior and adoption. But yet what's desired I think from policy perspective is to go, you know, out of the box and go further than has ever been gone before. So inherently these modelling processes are a little backwards looking like econometric models are.

And that's important and useful but we also recognize we're trying to change, make the future different from the past. Then we have to acknowledge what the limitations of looking backwards are.

That's why I'm going to note in a minute we need a lot more focus on scenario analysis

because I think it lends itself much more to this type of a situation. A clear and more underlying the point estimates that are as the sample.

Am I over time yet?

MR. KLEIN: You're doing fine.

MR. RUFO: I tend to go over time so I just assumed I was already.

Next slide, I have some concerns.

I think I just alluded to one of them. I think we are trying to a lot of us in the industry who are doing studies are trying to adjust to the, wow, juggling this incredible demand and desire to get this information quickly and we're all working hard to do that. But the timing is a challenge, especially for the more, detailed, bottom-up studies.

And that's why I think in the short term moving all the policy objectives and schedules we need a combination of leveraging these bottom-ups studies but not relying on them exclusively for a number of reasons in developing some tools that are a bit simpler and higher level and more transparent in this process.

But generally I wanted to emphasis that there's, you know, no single answer to questions

regarding future adoption behavior so we should be careful about an event. I know in our work despite putting a bunch of caveats and discussion in the text as soon as you come out with a single line associated with a forecast then it tends to want to go around those numbers. So I think we should focus more on a range of results and explaining why there's a range of results so that it can inform policy better.

I think the last point more cross-organization collaboration. There's a lot of these studies that are done not just, in California there's been a lot of collaboration so the IOUs have been working together on this study since 2000. That's been great. That's created a lot of efficiency for these studies.

And there's all kinds of collaboration that has been discussed here already today. Nationally there's not very much collaboration. I think that there tremendous efficiencies of research and knowledge building that we could gain by collaborating nationally. There are dozens of 100,000 dollar potential studies being done that really don't move the ball forward in any way, shape or form in my opinion right now.

But really that's not a California concern at the moment but I do think there are some lost opportunities for a national collaboration on research that would benefit this work everywhere.

Next slide. I guess some of the things that are needed. I mentioned a few of these already.

We need better data on what the markets are doing. Today how saturated are these markets or unsaturated. We need a lot better on the second element here.

Marketing/Information effectiveness. I think there's general agreement in California and I think it's appropriate that we need marketing and information programs. It's not just incentive programs. You don't want one without the other.

But what I don't think we have is a very good understanding empirically of how different market and information and knowledge, building efforts lead to adoption. And when we're doing these models and forecasts we have parameters for those things. We have the mechanics but we don't have the empirical data to really feel comfortable with the functional relationships.

That relates also to the second point of just better understanding adoption. My little sub-bullet, what ever happened to experimental designs. You know, back in the late 80's ironically I think that the industry was more oriented to maybe because it was early in the examining of efficiency and there was more opportunity to do testing control. But we're not doing that much any more.

One of the things that we have to be careful about is in our rush to embrace and love energy efficiency and do more that we're not doing so much so fast that nobody has time to stop and do some controlled analysis to really figure out what works.

And because we've been successful for the last 20 years and we have changed markets it's very difficult to understand what an appropriate baseline is for measuring our marginal effectiveness today. Whether you want to call it free ridership or whatever there are all kinds of issues that are hard to isolate. So I think that's just one example. There are other things that we could be doing to try to isolate effects better.

Now we need to improve tracking of efficiency accomplishments. I think that there's been a lot of progress there in the last couple of years. You can now get all the programs rolled up for a consistent set of workbooks but there's a lot of work that still needs to be done there.

Design and practices. This is another really important area. A lot of the efficiency I think we've been successful at, not all of it, but a lot of it over the last 10 years or so has been, you know, widget replacement. And there is some, there has been a reduction in some of that potential for big ticket items like T8 lamps and electronic ballasts are 60 to 70 percent saturated.

You know that is important. CFLs are becoming very saturated in commercial. Those are good things. So a lot of the remaining potential is tending to be in practice areas which are more difficult to influence. I think we need a much better understanding of design practices and how to change them and how to forecast what we need them to do in that area.

I think I will probably just stop here since now I must be near the end, yes.

ASSOCIATE MEMBER GEESMAN: Mike if you would comment on aggregation bias. It would help.

MR. RUFO: Yeah, what I mean by that is just one of the struggles in these studies is what level do you say make your analysis. And I guess the most extreme kind of aggregation bias that I see sometimes in this kind of work is if you take DOE II prototype of a single house and you run some efficiency measures on it and then you say that that house represents the entire population. Well that's aggregation bias because not all the homes look like that.

So we tend to segment a lot in these studies but that also makes the studies more complex. We get appendices that are this thick of data. Peoples' eyes glaze over and there's a lot of, you know there's some tension there.

And so I think we just need to have more dialogue and discussion about how to segment data. What's a meaningful way to segment data. Get more information from the field about distributions of characteristics that really affect efficiency potential one way or another. Because we kind of have data that's single-point estimates.

But I think we're in better shape right

now in California than we've been in for a while again because of Rath and Seuss. That gives us a lot more data for this kind of work to understand the distributions rather than just single-point estimates.

I think those are the main points that I want to, the last there again was that just in the short term and even for the long term I think we need a combination of these more detailed models. But they have a number of limitations too.

What we need is some higher-level, policy-tool, scenario analysis, end-use level analysis where we can look at what are some of the other macro trends that are affecting aggregate energy use so that we can get a better handle on. We may win this particular battle on energy efficiency here but we're kind of holding steady on aggregate load because of an energy service demand over there.

And what does that tell us about maybe we should be focused saying the attention on what the effect of increasing home size is as opposed to getting this particular measure in commercial refrigeration adopted. So this concludes my comments. I do have some notes on your questions.

The list of questions but probably go to your direct questions first. I think I may have already hit some of the other points I was going to make.

PRESIDING MEMBER PFANNENSTIEL: Well let me ask generally when you're thinking about potential are you thinking about it in terms of what we in California characterize as a standards, efficient appliance and go these standards or just what we would think of as the potential from say the utility programs?

MR. RUFO: The scope of the studies that I've been involved with that I was referencing on the first page was voluntary, utility programs. And that's a really important point in terms of what was attempting to be modelled.

Now that said the numbers that came out of some of those studies like the early ones, the maximum, achievable potential and the Energy Foundation IOU of one of two studies that had some indirect effect on the goals. That maximum, achievable scenario in my mind was still meant to kind of a theoretical benchmark.

And what we said in that study was that that maximum achievable was under the assumption

that you pay a 100 percent of incremental costs and you make the market fully aware and knowledgeable. And that is a de facto kind of direct, install model. And we would not advocate for de facto, direct install is what you do for the entire market. It's kind of what you do in niches at different points in time. And hopefully you come in with codes and standards before you need to direct install the entire market. Because it's a lot more cost-effective that if you want it all that's, there's a time when codes and standards come into play.

So the scope has been a model, voluntary program but in some of the more high, aggressive scenarios I would say that it leads more towards the optimal strategy as a combination of the voluntary programs and the codes and standards.

PRESIDING MEMBER PFANNENSTIEL: You get closer to the standards.

MR. RUFO: And that's I think the dynamic that we need to understand better and talk more about within the goal setting process.

PRESIDING MEMBER PFANNENSTIEL: You don't though include what Scott was talking about of operational efficiencies in the distribution

system.

MR. RUFO: Not in these studies that I'm referring to.

PRESIDING MEMBER PFANNENSTIEL: Talk a little bit about how some of the longer term changes get picked up. And I'm thinking about the larger house size, the difference in appliance stock, difference in, you know, television sizes and those kind of things.

MR. RUFO: Most of that is not being picked up in the studies that I've referenced. And that I think is because the bottom-up models that we've been running they're not what I would call a fully, integrate, one-world models.

They're not doing end-use forecasting within the models. They're taking those as inputs, outputs from other models. And so we're just kind of looking efficiency on the margin.

And honestly I just think there hasn't been enough attention to those dynamics, more as there is a lot of data available that explicitly forecasting those phenomenon.

We've got into looking at this issue more in doing the work for CC PIER on residential, long-term, efficiency scenarios with Mr. Franco.

And just built some simple models conceptual of for each end use. There's an efficiency potential and there's an energy, service demand.

And in some cases the energy, service demand we said it is flat in some cases we looking backwards at data concluded that the service demands had been increasing, will continue to increase.

So I would say the studies haven't been addressing that. But they need to start addressing that. And I think we need some more information too in terms of basic research on those service demands.

Another way that they do address energy, service demands is that most of the studies that I've been involved with try to hold service demand constant.

But it's not that easy. We assume in these modelling processes that the energy-efficiency is equivalent to the non-efficiency level of service. So residential CFLs are a great example right. Not everybody thinks that a CFL is equivalent to an incandescent.

By including in the study we implicitly are kind of saying that they're close to a full

level of service but then when we go to model adoption we may have a very low adoption for that product because we have a gap between what the economics say and what the market adoption says. And we call it a market barrier. Maybe the barrier in that case is it's not really equivalent level of service at least for some people.

PRESIDING MEMBER PFANNENSTIEL: Or maybe it's if they show information.

MR. RUFO: Or maybe it's information, yeah. And it's dynamic too. The product quality is changing all the time. The costs are coming down.

But there are some products that do get excluded from the analysis altogether sometimes like a direct, evaporative cooler. We actually don't have a modelling framework that supports how you model if you wanted to have a policy that said direct, evaporative cooling takes over for refrigerant air conditioning. We don't have a conceptual model that supports that because it's already a lower-cost product and it has a lower energy service.

That's not to say you couldn't develop a modelling framework but that's why those things

are typically, that type of measure is excluded. And there is a lot of grey area here.

And so there's probably are some things that are kind of left off the table because they're difficult to handle that, you know, could be brought back to the table from a what do you want in terms of policy long term.

PRESIDING MEMBER PFANNENSTIEL: Thanks, other questions. No. Thanks very much.

MR. KLEIN: Thank you. Our next speaker is Brian Horii.

MR. HORII: Thank you. Good morning commissioners. I've been asked to come here and speak about avoided costs. So by way of introduction while the first slide comes up I thought I'd give a little background on the different applications of avoided costs or venues for avoided costs in California.

Can I have the next slide please. Thank you. So first off there is the use of avoided costs for energy-efficiency programs. And we developed the avoided costs that are currently being used for the 2006-2008 program cycle.

There is also at the CEC the Title 24 building standards which also use avoided costs.

And we helped develop those for the 2005 and the upcoming 2008 cycle.

There was also the renewable resource market price referent the MPR proceedings where we assisted in development of those prices. And there is also cases where the investor-owned utilities will come before the PUC and their general rate case proceedings and often present marginal costs for the purpose of relevant allocation and rate design. And we've been involved in some of that as well.

Now if we go to the next slide. What's interesting is the fact that the avoided costs in the different proceedings can actually vary quite significantly both in the way they're characterized and in terms of which avoided cost components are included in the analysis.

I guess we can start with what is currently being used for energy efficiency. So there obviously we have generation, avoided costs. And I'll get into more detail in generation avoided costs later.

We also have T&D capacity, avoided costs. Plus environmental, that's CO2, PM10 and NOX.

We also have this sort of odd thing called a market multiplier effect. And basically what that is doing is recognizing that when you reduce energy usage obviously you have the savings from not having to purchase that electricity. But you could also be suppressing the market price in that hour.

So you also have savings on all the purchases that you do have to make. So you save from what you don't have to purchase and from dropping the market price.

Several years back when everything was transacting through the PX the market multiplier effect could be huge. It could be a multiplier of four or five upon the market price. But since utilities have gone to long-term contracting and only procuring maybe five percent of their resources from the spot market at least for the IOUs their market multiplier factor is much smaller now. It's still in the framework and the methodology and it's but it's not a major cost component anymore.

We also have ancillary services for generation services. That's also relatively small in the order of three to five percent of the

total, avoided, cost value.

I guess I should mention T&D capacity is generally fairly small on the order of ten percent or less of the total, avoided costs.

And so that's what we do for energy-efficiency evaluation. You noticed on the bottom this last bullet, this rate level adder. That's something that is unique to the Title 24 building standards. And the reason that is there is the building standards are designed to look at the cost effectiveness from the customer's perspective.

And in the item I've described above those all focus on show the avoided cost from the utility or the program administrator costs. It's not from the customer's perspective.

And the fact is when you add all those components up it's generally lower than the retail bill savings the customers would see. So for the building standards work we do have to add in this rate level adder.

So again it's one of the differences between avoided costs applications in different proceedings. Similarly for the MPR that one is actually very different. That one is focussed on

just generation. So you have no T&D. You have no environmental. You have no market multiplier. Although you do have a small ancillary service piece in there I believe.

Okay next slide. So this is just a graphical representation of the different, avoided, costs components. This is from the energy-efficiency, avoided costs. And this is a three day snapshot.

And the main point I want to make with this slide is to show the relative magnitudes of these different cost components. The bottom component in the maroon or burgundy that's the generation, avoided costs. You see that that is by far the dominant, avoided cost.

You'll see at the very top there's a blue sort of spikey piece and that's distribution capacity. Now what's interesting for distribution capacity is if you add it up for the whole year it's a very small piece. But in certain days, those hot summer days for example, there could be a significant avoided cost associated with not having to add distribution facilities. When being able to reduce peak load thus driving the need for those distribution investments. So we see these

spikes on those particularly hot days.

It's also probably noteworthy, you probably can't glean it from the slide but CO2, I know that's come up a couple of times and that is shown here although it's very difficult to see. Because it is a fairly small part of the total avoided costs.

This work was originally done back in 2003-2004 where carbon wasn't as much of a concern as it is now. So that's based on a carbon price of about eight to nine dollars per ton.

And we've seen at least older results from the energy modelling form out of Stanford where it shows values maybe as high as 50 to 60 dollars per ton. But still if you multiply it by four or five times it's still fairly small compared to the total generation avoided costs.

Okay next slide. Now since generation avoided costs is the dominant cost component I thought it was worth a slide to talk about the development of that particular component.

There are three basic ways to develop a generation avoided costs. One is to use market prices. And so for the near term that actually is what we favor. Just go out to active market, see

what the forward prices are and just use those directly.

Obviously when you're looking at 10, 20 year forecasts that's not really an option. Another traditional method is the simulation model. And that's something that utilities used for years and years when they were integrated.

So you had models like ProMod, Elfyn, Prosym, multi-sym, et cetera. One of the things or one of the problems we see with the simulation approach though is it's very time consuming, very complex, often proprietary. And it tends to be in the long run that the models give you prices close to the long run costs of a combined-cycle, gas turbine anyway.

Because the general economic theory is a combined-cycle, gas turbine represents your new entrant. This is the unit that could come into the market. So if market prices are significantly above the cost of that turbine someone is going to build that turbine.

And when they build that turbine that's going to drive the prices because you now have excess supply. Conversely if the prices are low no one is going to build and then demand will push

the market prices up until they hit that point when someone will build again.

So, you know for the long run the equilibrium price we see is the price that basically fluctuates around the cost of that combined-cycle gas turbine which is the third bullet there.

Some combined-cycle gas turbine that's what is being used in the energy efficiency proceeding. That's what is used in the Title 24 numbers as well as the market price referent.

And what we do there is we calculate an annual average price based on the forecast of gas prices and a forecast cost of capital and certain financing assumptions so the CCGT owner would obtain a return of and on of a capital investment.

And now we apply a shape to that . Because the annual average I think as people have noted is not of particular concern. You also want to see what the variation is in prices throughout the year.

Can we have the next slide please. So that's been referred to these TOD, these time of day factors. And what I'm showing on this slide are the various TOD factors that are sort of out

there right now.

The smooth blue line, that's based on the PX market prices when the PX market was functional. So that has a sort of smoother shape to it. Although you'll see it's the most peaky of the shapes.

Although I'll note that this does not include the energy crisis period. So it's high but it's not extremely high. Not like we saw during those months.

Well then you'll see a big variation for what Southern California Edison versus San Diego and PG&E estimates for their time of day factors.

Now they all have sort of the same general relationship. You have a few higher cost hours and then dropping down lower but obviously the variation in the TOD factors is quite significant.

Commissioner Geesman earlier you had a question on whether I think it was there should be just one set of TOD factors. And I certainly believe the TOD factors should not be developed through proprietary models. I have a fundamental concern with that. I think ideally it would be nice to have one set of TOD factors but then I

recognize that there could be compelling reasons why there would be differences in TOD factors for different utilities. Now if they all had access to the same markets then you wouldn't expect to see great differences. But to the extent that you have because of transmission constraints especially some bifurcation of the markets I think that would be valid.

ASSOCIATE MEMBER GEESMAN: But don't we operate as a common control area among the three investor-owned utilities?

MR. HORII: Among the investor-owned utilities we do, yes. But we still used to see some differences between MT15 and SP15.

ASSOCIATE MEMBER GEESMAN: Sure. But should there be a consistent methodology used among the three to at least define how to approach the question. They may have different results but I don't understand the rationale for allowing if not a thousand flowers to bloom at least three flowers to bloom in terms of inventing different methodologies.

MR. HORII: Well I would agree that there's certain fundamentals and certain I think you probably could go that direction where you

have a common methodology for a lot of different inputs. But certainly you wouldn't want people just bringing helter skelter TOD factors forward. You want them to be based on some strong fundamentals.

ASSOCIATE MEMBER GEESMAN: Yeah well my understanding from the market price referent process is that the Edison TOD methodology is in fact derived from that golden era in California when the PX was in operation but before the meltdown. If that's the appropriate approach shouldn't it be applied consistently to PG&Es in San Diego's methodology. Or if it's the wrong approach shouldn't Edison adopt what PG&E in San Diego used to define a better approach?

MR. HORII: Well I don't think I want to sort opine on which is the better approach because I believe that the old market price and what Edison did if they used the old market price I think that certainly has strong validity because it is actually real data. The problem is we're moving many years past when that data was prepared. And although that's what we used for our avoided costs you know we recognize there are problems with using data that is coming seven or

eight years old now.

That being said there's a tremendous amount of uncertainty I think about what the markets will look like in the future with the possible formation of a capacity market as well as the possible move to locational marginal prices.

So I think it's a tough transition period right now to try to come with what the best TOD factors would be. So I wouldn't want to try to make a, drive a stake in the ground right now on it.

ASSOCIATE MEMBER GEESMAN: And I'm not asking you to. I'm really asking more to attempt to rationalize why the state of California is better off having three widely divergent approaches rather than attempting to come to some consensus on one.

MR. HORII: Well I would agree that moving towards consensus on one would be the ideal, definitely.

ASSOCIATE MEMBER GEESMAN: Thank you.

MR. HORII: Okay can we have the next slide please. Okay this slide is just pointing out some of what we were talking about differences. And I just wanted to point out that

for transmission and distribution avoided costs so I'm moving away from generation now, we do see substantial differences between utilities and even within utilities.

Unfortunately the colors on the graph aren't the best but I will point out that for San Diego we see T&D avoided costs on the order of 77 dollars per KW year. Whereas for PG&E if I can read this we're varying from between about five dollars to 70 dollars within their different planning areas. And for Edison we have a variation of five to I can't read my own slide.

ASSOCIATE MEMBER GEESMAN: Thirty-six.

MR. HORII: Thirty-six, thank you commissioner or Scott with the better eyes. And this sort of points to what Scott was mentioning earlier about the differences for their member POUs because obviously if we see this kind of distribution of costs for example within PG&E that has uniform planning standards we would certainly expect to see a wide variation cost among different municipal utilities that have very different planning standards.

MR. TOMASHEFSKY: Dollars per KW year?

MR. HORII: Dollars per KW year, yes.

The other thing I'll point out is for the energy-efficiency avoided costs that we look at for IOUs everyone is pretty much summer peaking. So there is some slight differences in peaks that we use for T&D based on climate zones just as we do in the building standards. But by and large everyone is summer peaking.

That being said there was still a lot of discussion and controversy over how to define what a peak reduction is in the energy efficiency proceedings. You know, which hours, which months, which days because there still are differences between Northern California and Southern California.

And I think that sort of consistent definition issue may be even a larger problem with the POUs. Especially if you have, I think Scott mentioned a utility like Trinity where they are not a summer peaker. You'll have these smaller winter peakers like Tahoe, Truckee or something. So I think that's a complicated issue that maybe John will get into when he talks about the studies they are doing.

So moving to the last slide. I sort of jumped the gun on a little bit of this but I want

to bring up some of these issues I see for the POUs.

One of the main things is the avoided costs that we developed for the IOUs are based on this idea of access to markets. Basically the CCGT is driving your generation avoided costs because that's going to drive the average market price.

Now if you have a POU that doesn't have access to a market, let's say they buy directly from a federal power agency and they can't resell any power that they don't choose to use then that's no longer the right avoided costs marker for them. They aren't really saving that market price. Now maybe the federal power maybe if you go further upstream maybe there's the savings there because the federal power can perhaps sell that on the market price.

But at least for that particular utility they are going to be seeing avoided costs that are very different from what the IOUs may be seeing.

And then this last point I already brought up about the summer peak concerns. So that wraps up my formal presentation. I'm open for questions.

ASSOCIATE MEMBER GEESMAN: Brian I didn't understand when you were describing avoided costs components the difference between what's used in the market price referent and what's used in efficiency programs. I think you said that there were some differences, environmental costs was one that I recall you mentioning. What's the rationale for those differences?

MR. HORII: Well the market price referent has a different purpose. It's largely used to determine what's sort of the above market payment that needs to go to make up the gap between renewable energy and market power. So since you're just comparing generation to generation, first off you don't need to look at the T&D issues.

The second thing is the environmental piece that my understanding is it was more of a sort of policy choice. Because should the environmental cost be captured in the MPR price then that means that your make up payment is going to be different than if you exclude that. So it's sort of a matter of does that money come out of sort of what's funding these MPR make up payments or is it part of the regular utility revenue

department. And that's why the environmental costs are looked at. Because it doesn't actually decide whether or not you'll proceed with the project. It just sort of determines what this sort of transfer payment is for the project.

ASSOCIATE MEMBER GEESMAN: You know that doesn't make very much sense to me. We've had 80 contracts entered into under the RPS program. Only one of them has sought that supplemental energy payment to reflect an above market price referent component of the contract.

On the efficiency program side though there is an environmental cost included in the avoided cost calculation?

MR. HORII: Yes there is. There is a cost for CO2, for NOX and for PM10.

ASSOCIATE MEMBER GEESMAN: Not for PM2.5.

MR. HORII: Not for PM2.5.

ASSOCIATE MEMBER GEESMAN: Okay thank you.

MR. HORII: Okay.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

MR. KLEIN: We have our last speaker.

MR. ANDERSON: Good morning, my name is John Anderson. I'm with the Rocky Mountain Institute. I'd like to thank the commission for the opportunity to present here today.

In addition as the last speaker of course I want to congratulate the two previous speakers for giving half of my talk (laughter). We're sort of the chief cat wranglers here for the 39 POUs that are not independently determining their own energy efficiency standards.

Slide please. One of the things I want to start with is to point out the scope of what we're dealing with here. As you can see the IOUs of course are roughly three-quarters of the power generated in the state. The largest four or five, five I guess POUs shown there represent another 17 percent. We've worked with Palo Alto and Silicon Valley independently to help them determine their targets.

Then all the other POUs which is the group that we're working with here in total represent about nine percent of the power generated in the state.

Next slide. Very briefly within that the nine largest POUs in our study actually

represent eight of that nine percent. So that of the 39 or 34 that we're working with there's really nine that you have to worry about. The rest frankly plus or minus are not in the round-off there for the rest of the state.

Now the other message to take away from this is that these are very small utilities. You do not have the opportunity in this setting to do some of the statistical averaging that you will in the larger IOUs or larger POUs. And I think you'll see that play out as I describe the process that we've used here.

For example the, we'll see individual utilities that have dramatic concentrations in a particular sector. POUs that are essentially a hundred percent residential. POUs that have 50 percent industrial loads which are represented data centers that are 24/7 absolutely stable year round.

Those make customizing the process for the particular utility very critical. So in general what we've done in this study is trying to find the balance between one size fits all and doing 39 independent for something that represents at most nine percent of the California generation

pool.

Next slide please. Our process here was to, we used as a basis we relied heavily on the 2006 Itron study which included a rather extensive list of efficiency measures, costs for those measures and the potential for those measures in various sectors. Based on that data we built a model that could be customized for each POU based on the four factors that you see here. The climate zone, the relationship of building types which is a sort of business types for the commercial sector and then end-uses within some of the commercial and industrial applications. And then of course rates and avoided costs.

Slide please. We went out to the POUs in the study and asked them for the best data that they had. Now this varied widely as you can imagine. In some cases there's a, the person responsible for getting this data is a person who works for the city and then part-time kind of does the utility stuff on the side. So we had to be fairly realistic about what we were asking for here. To the extent that we could though we gathered this information specifically for that utility. Where we couldn't we again fell back on

the Itron study, looked at the most applicable IOU. So if we had somebody in the far south of the state we'd look at San Diego. Up north here it would be PG&E.

Next slide please. The overall process involved was a little different than the Itron process. In particular what we did we used a very similar technique, essentially the same technique for developing the technical potential.

But then for the cost effective potential we only considered measures that had met the technical potential hurdle. We didn't go back and reconsider everything from the ground up again.

The cost effective potential was based on the TRC using a process which is essentially the same as E3's that's fairly well defined methodology. And I'm not going to talk, I'll address the achievable potential when I get to that though.

Slide please. In terms of developing the technical potential and customizing it for the various POUs as for all the reasons that have been pointed out already the Itron data does not just sweep across in toto to the POUs. We really

needed to go back in, figure out how the POU is different from what the Itron had assumed for the IOUs and make adjustments like that.

As we march across these boxes you can see that we first had to take the IOU technical potential estimates, we reduced those to a percent based on the building type, we adjusted that for climate zone, we adjusted for the end-use profiles in that public utility and then ultimately we converted the percent savings for the IOU and adjusted those by the building types and climate zone of that public utility.

Of course finally we forecast those results forward. We're currently using 2007-2016. We can adjust that certainly. This is a work in progress to move forward with.

The next slide. In terms of the cost-effective potential, again we needed to customize for that particular public utility. We as I mentioned we started with all the technical range, range of technical potential, we applied the total resource cost test. We calculated the other tests. The RIM, the participant test and the utility test because those will have impact on recommendations to the utilities for implementing

those structures. Our approach to this is if a measure passes the total resource test there's money on the table. Making it economically efficient is a matter of giving that money up to reward the investors who put the money in and the participants who put effort in.

Brian talked just a minute ago. We had several rounds about avoided costs. There was some utilities that simply had no idea what their avoided costs were, never even thought about it. There were some that did and did not want to reveal it. And then there were some that were, of course this is what it is. And the response was all over the map.

In general where we could of course we used the localized data. Where we couldn't in line with what Brian suggested we took the closest IOU avoided cost. With the idea that that would represent a good proxy for the market data for that POU.

ASSOCIATE MEMBER GEESMAN: Just if I may.

MR. ANDERSON: Absolutely.

ASSOCIATE MEMBER GEESMAN: And Brian you should jump in if you're the more appropriate

person to answer. My impression from what I've heard this morning is that that IOU avoided cost is a calculation made in 2002 or 2003?

MR. HORII: Actually those avoided costs were updated in let's see March of 2006.

ASSOCIATE MEMBER GEESMAN: Okay. And then did you then in March of 2006 used a gas price projection that was formulated in early 2006?

MR. HORII: Actually the March 2006 data is the one we polled the gas prices and markets forward on it was on March 14th or 15th. And we used those. And so the actual numbers were finally adopted in June of 2006.

ASSOCIATE MEMBER GEESMAN: Okay.

MR. ANDERSON: Finally we got I mean all this stuff that I have described so far is reasonably mechanistic. I mean there are as previous speakers have pointed out there are dramatic uncertainties in some of these numbers. There's dramatic holes in some of the data. There were cases where we had to make some heroic assumptions to get through this.

A good example of that perhaps was the data center issue which factors large in and

around the bay area. You have utilities there that are dominated by data center loads which have huge technical and economic potential. Their achievable potential is very low based on things like corporate culture and their mode of operation.

Finally though we had to buck up and face the achievable potential. And this was frankly a challenge. All of the adjustments that you make to go from at this point in the game to go from cost effective potential to achievable potential have a lot of uncertainty in them. There's going to be a lot of swag about any of these.

We started off thinking about things like simple percentage of the cost effective potential. The trouble with that is that there is virtually no data available on it.

There is data available for percent of total load or total sales per year. However again that seems like an awfully blunt hammer for some of these POUs that have very specialized kinds of loads. And then of course most of these utilities had some kind of historical programs in place and seemed like only reasonable to try and take a look

at those. Not that they would be the standard but that they would be a baseline. But you knew you could get at least that much.

After kicking that all around we basically put together a strategy that we're proposing to use now. It is a combination of these. As I mentioned we have a baseline and historical savings primarily based on the 1037 reports. Then what we do is we go through and ask the, because the utilities are so individualized and frequently we'll get when we talk to the folks involved in the utility, they will give us information verbally that they wouldn't have given us in writing because we didn't know what to ask.

So our proposal is that we will put together a kind of a base case run for each utility. And then we'll have the utility people get together with us in a workshop and work with them individually. What does your load look like? You're telling me it's 95 percent residential here. How hard have you pushed on this or that?

We'll have them go through look at the measures that pop out as the most cost effective, that offer the largest savings and in a cost-effective manner. And work with them individually

to try and figure out what do you think the penetration rate of that could be?

Finally we'll then take those numbers which are kind of their best guesses and we'll develop an algorithm and try and adjust that based on the amount of their budget that they're willing to put into efficiency programs. This is not perfect. I'm not sure there is such a thing at this point in the game. There's simply a big hole in the data as Brian mentioned.

So that is our proposal going forward right now. As I say the problem here is trying to individualize these things, customize them enough so that they're realistic. So when the staff members go to their governing boards they don't get laughed out of the room. And yet challenging enough that they meet the intent of the legislation. And clearly we're playing some balancing game here.

The ultimate product of this, next slide please will be a report that looks something like this. We're proposing to report out technical, cost-effective and achievable potential. The technical and cost effective will be on a sector by sector basis. This may well be of less concern

to you presumably of more concern to the governing boards and the staff as they try and design implementation plans. That concludes my prepared remarks and I welcome any questions.

ASSOCIATE MEMBER GEESMAN: How did you address time of day, time of year in defining cost effective.

MR. ANDERSON: As I mentioned we leaned heavily on the 2006 Itron study. And my sense is that there was a little bit of that baked in there but not basically was it kind of got passed over.

MR. RUFO: Well those shapes got mapped into six time of use periods.

MR. ANDERSON: Yes.

MR. RUFO: Which has an avoided cost.

MR. ANDERSON: So with those six time of use periods there was a different factor applied for air conditioning loads for example got a very high factor based on coincidence with peak loads.

ASSOCIATE MEMBER GEESMAN: Applying the local utility's rate structure?

MR. ANDERSON: In this case it was applying the closest IOUs rate structure.

ASSOCIATE MEMBER GEESMAN: Okay. And how did you address the question of discount

rates?

MR. ANDERSON: I apologize I don't recall off the top of my head.

ASSOCIATE MEMBER GEESMAN: Is it safe for me to presume that you did not use the Energy Commission's sectional discount rate bonds fee.

MR. ANDERSON: Yes that is safe.

ASSOCIATE MEMBER GEESMAN: Thank you.

PRESIDING MEMBER PFANNENSTIEL: And I take it that your potential didn't include, doesn't include the supply-side distribution savings.

MR. ANDERSON: This was strictly focused on demand side.

PRESIDING MEMBER PFANNENSTIEL: Okay, thanks. Thanks very much Jim. Before I excuse the panel let's see if anybody in the audience has questions of the panel or comments specifically on the potential studies that we just had a discussion. I want to thank the panel very much. Gary did you have a comment?

MR. KLEIN: You've talked about the differences in various things for each study. Would any of you like to comment on how each panel sums up the similarities and differences.

MR. RUFO: That's one of the things we have to wrestle with. How we're going to aggregate those when we get them.

MR. KLEIN: I had some other comments but it's not on that but it might be related. I'll see if anyone else wants to comment on that first.

PRESIDING MEMBER PFANNENSTIEL: Mike would you make sure your mic is on.

MR. RUFO: Okay.

MR. KLEIN: Does anybody else want to comment on that?

MR. RUFO: I guess I would comment on that in a broader way. That I think my concern is a little bit less on the similarities and differences in study that we're talking about here because there's a lot of interplay between them already and more about issues related to the study assumptions and how they relate to the state policy goals.

Things like we talked about what is the effect of greenhouse gas on avoided cost. That's important and that will have some affect on how much energy efficiency is cost effective. And that will also then probably affect what's kind of

measures somewhat come into these studies.

But maybe a more important long-term effect is is there going to be and effect from greenhouse gas issues and policies and concerns on the way consumers make decisions. That to me is a huge question with respect to these goals. Where does behavior come into the process. And I'm not suggesting that one should forecast that behavior changes but I think it should be considered in looking at different scenarios.

What I'm hearing from this whole workshop and what we've been hearing from discussions related to this for the last few months or years is that there is going to be some natural healthy tension between the goal setting process and the concerns of people on the ground who are running programs everyday and trying to get people to participate. So just trying to align policy goals and the strategies and the tactics in the short and the long term.

You know the AB 2021, I'm seeing the words all cost effective, reliable and what was the other, feasible. But one word that is not there is optimal. And what's the optimal pathway? I think that's something we got to or should be

thinking about the optimal pathway in terms of the whole policy and strategy tactic tool kit not just the IOUs, not just the state but the states coming together in a strategic way. And between the IOUs and the POUs as well.

PRESIDING MEMBER PFANNENSTIEL: Thanks. Sure Jim.

MR. ANDERSON: As we went through this and looked at the data availability we began to realize what a truly challenging task you have here. There's no question about that. I think we can probably work together. I think that for this time, this round as it were, we can hammer out some details and assumptions and so forth.

What I'd suggest is that the commission may want to consider looking closely at this process as it moves forward. I realize that some of the questions that you asked of us were focussed very much on that. I appreciate the work of my previous speakers but there's clearly going to be a need for more and much better defined data on these programs.

Cost effectiveness of the programs, simply efficacy of the programs. There are many of these programs that have existed for years, the

utilities know that there's money going out the door and they know there's some effect. But it's fairly difficult without a rather extensive baselining process to really determine accurately what the impact of those dollars are.

And then as I pointed out a big one I think from the commission's point of view will be this transition from cost effective where there is some fairly, mechanistic kind of decisions that once you've made up to your point about the discount rate, you make that decision and move forward. It's really mechanistic at that point.

The achievable however has got huge political implications and the methodology for that may need to be better defined.

PRESIDING MEMBER PFANNENSTIEL: I think our issue, however, is here we sit in April of '07 and by statute we need to define this by November, I think at least in the IEPR cycle. And we would love to have all the information that you're talking about and that to some extent we thought some of it was here it's a little bit disturbing when we found out it wasn't going to be here on schedule. And we do this again in three years. But there's a lot of investments, a lot of

decisions that we made in those three years between cycles. And so what I'm struggling with is what information do we currently have to make these decisions.

MR. ANDERSON: If I might. I fully appreciate your position. I didn't mean to suggest that this was somehow a wasted effort or something. My sense is that we're the panel everybody moving forward is grabbing the best available data that we have at this time. And we will certainly continue to work with the commission to develop targets that are reasonable yet challenging. Having said that that should give us the basis probably for defining what to do moving forward.

ASSOCIATE MEMBER GEESMAN: I want to come back to again in that avoided cost determination. The extent to which a new gas-fired combined cycle is your invented alternative is that in fact the case for the POUs in the same way that it is for the IOUs?

MR. HORII: Well I guess I'll confirm that for the IOUs starting in 2008 we do use the CCGT. For 2006-2007 we use market prices. For what the POUs have used I know we summarize the

IOU information in a form that could be used by POUs but I look to John in terms of how many POUs actually use the IOU information.

MR. ANDERSON: I'm not in a good position to answer that because I haven't scanned all 30-odd inputs. For the few that I have my sense of things is that the POUs of course naturally will turn to their traditional sources, the hydro, the load cost well established sources first. Once that is gone then they do in fact have to move into the marketplace.

And so a marketplace number which is again as I say we're using the IOUs values as a proxy for that seems like a very reasonable assumption. The POUs following this workshop will have the chance to go back and internally adjust that. They'll have a copy of the model and they can work with the model to satisfy their governing boards.

ASSOCIATE MEMBER GEESMAN: And I guess my reaction I'm also going to presume, Brian tell me if I'm wrong, you're assuming that new combined cycle operates probably 70 percent plus of the time.

MR. HORII: Yeah I don't remember the

figure off hand but it's definitely either mid 80's to mid 90's. It's a very high cap factor.

ASSOCIATE MEMBER GEESMAN: I'm the presiding member of our facilities siting committee so I've got a pretty good sense of what kind of permit applications come in the door. I got a pretty good sense of which they approve by the commission. I can't begin to tell you the last time we saw a new plant with those types of assumptions.

And frankly it's been, I guess we have one combined cycle being proposed to us now in the PG&E service territory. But most of the projects that we see are simple cycle projects, sometimes with assumptions that they're going to operate 40 to 50 percent of the time.

So I'm not real certain that your imbedded generation alternative in calculating avoided costs is really up to date. It may be idealized, it may be optimistic but I'm not certain it reflects current market or permitting conditions.

MR. HORII: Well certainly it may not match the construction that is going on in California. Potentially the market prices could

be driven by generation outside especially coming from for example the Arizona area. So in that case maybe the CCGT assumption isn't so bad.

ASSOCIATE MEMBER GEESMAN: Well I'd like that thing to be pretty explicit that market price referent, the avoided cost in evaluating energy efficiency planning, the proxy that the POUs use is all directed to some hypothesized, out of state, new gas fired combined cycle if in fact that's the case.

MR. HORII: One question I might have on the side of I'm just not familiar with the plants that are scheduled to come on but are those simple cycles with the potential for them to go combined cycle?

ASSOCIATE MEMBER GEESMAN: Not anymore, they used to be. People had much different allusions and hopes and expectations as to what the market would support just a few years ago than they seem to now. And it's my impression that what you're trying to capture in this avoided cost determination is a new investment decision at the time the judgement is made as to how much to invest in energy efficiency.

MR. HORII: Yeah we're definitely trying

to capture to what we see the average market price would be and we see that being driven by the new types of investments.

ASSOCIATE MEMBER GEESMAN: And I think that's the philosophy the CPUC has in trying to run all these decisions through their procurement process. Trying to create a common framework by which to evaluate investment decisions.

PRESIDING MEMBER PFANNENSTIEL: Scott did you have something?

MR. TOMASHEFSKY: Yeah, just a couple of comments actually. Of course the way you calculate avoided costs has such an incredible impact on all these numbers when it comes down to it. I just wanted to throw out there are certain environmental policy objectives that you'll find at the local level as well. So your avoided costs may not consider anything less than a renewable investment, especially if you're expectations are to get up to a 20 percent level.

So all of a sudden the combined cycle formula becomes much more difficult to deal with. I don't know how to reconcile it and I don't have any solutions to offer. I did want to go back to Gary's initial question though, what do you do

with the numbers and what do you actually try to accomplish by November. And I guess one of the problems traditionally is dealing with a point estimate. And the last thing you want to do is constrain yourself to a point estimate.

I think one thing we did in 2003 with respect to the 30,000 gigawatt number is we used the wrong metric there. I think the ten percent threshold is more reasonable to use because you're really dealing with a range given the wide range of inputs that you have into this process. I think if you can come up with something that says we're going to have x percent of reduction over the next ten years I think that's reasonable.

I think you also have to take into consideration as over the course of that ten year period you're going to have two or three revisions to Title 24. You're going to have a whole series of other things that get thrown into play.

And you've got to balance not only what you're doing with on the customer's side of the formula but you've got to deal with building standard development and other things as well. You're dealing with renewable development too. And then how that it all fits into a combination

of state policy, not to mention where we go with CO2 issue. Because that takes the avoided costs issue and throws it into an area we really haven't even started to debate yet.

PRESIDING MEMBER PFANNENSTIEL: Thank you again to the panel. We have a couple of others who have asked to speak. And I don't know whether there is anybody on the phone but let's start with the audience first. I'm going to admit that in either case am I able to really discern the names.

ASSOCIATE MEMBER GEESMAN: Chuck.

PRESIDING MEMBER PFANNENSTIEL: Chuck Main perhaps?

MR. MASS: It's Mass.

PRESIDING MEMBER PFANNENSTIEL: Mass, sorry.

MR. MASS: I read the intent of the organization and I thought it was to look at different methods of efficiency and how you were going to be evaluating it so I was going to express my interest.

As far as how the solar-thermal industry has been affected by the CSI and the new home building, which is what your organization has been

in charge of, so I had kind of a misconception of what this was all about.

But I don't think you want to hear my comments because they are not very positive.

PRESIDING MEMBER PFANNENSTIEL: Thank you, sir.

Ryan Bernardo.

MR. BERNARDO: My name is Ryan Bernardo, I am here on behalf of Braun & Blaising. And we were just trying to get clarification on the June 1st deadline and some of those things for client purposes and how much efforts they are putting forth in trying to meet those deadlines. If the Commission is still pushing forward to meet those dates and move forward on that schedule.

PRESIDING MEMBER PFANNENSTIEL: Sylvia, do you want to respond to that?

MS. BENDER: Because of the differences of when the potential studies will be done, as I think we said earlier, there are going to be a series of staged submissions to us. There will be some coming from utilities like SMUD and I believe you said Palo Alto by June 1st. The others will come to us probably closer to the end of the month.

PRESIDING MEMBER PFANNENSTIEL: Anybody on the phone for comments?

MS. VALENCIA: There's no one, no.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

Final comments, Commissioner Geesman?

I want to say that I really appreciate everybody here. Certainly the panelists on both panels, you have given us a lot of information. And it wasn't always the information that we wanted to hear but we needed to hear it. I think we are better prepared now for what we have in front of us and what the task is.

We will be back for at least one more workshop on this subject and there's a lot of work to do. Thank you all very much.

MS. BENDER: It is our intent to come back actually with three more workshops before you. We have one on July 10th as I mentioned before which will pick up the second two major topics in the legislation, which will be the procurement and financing options for public utilities in achieving more energy efficiency. And also we will look at the evaluation requirements of the legislation on that day.

August 9th will be an all day workshop. This will be the time when we will have received all of the data from the peer reviews. We will have whatever data we'll be able to get from the PUC at this point.

On that day we plan to come forward with at least a preliminary recommendation of what our process has been, what methods we have used, what we might propose for this first round. So that will be, again, an all day discussion going over a lot of what we've talked about today in some sort of more process-oriented, here is what we have done, here is what we expect to go on.

Then on August 27th we will have one more workshop to come back to do any revisions that might result from what we present on August 9th. So if that meets your approval that is our plan at the moment.

So from here on out now we will continue to take in all of the public comment, hold these additional workshops, continue our collaboration with both the POUs and the CPUC through their workshop effort. And by these dates then, June 30th and the end by September, bring all of these pieces together back for you.

PRESIDING MEMBER PFANNENSTIEL: Thank you.

(Whereupon, at 12:03 p.m., the Committee workshop was adjourned.)

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CERTIFICATE OF REPORTER

I, JOHN COTA, an Electronic Reporter, do hereby certify that I am a disinterested person herein; that I recorded the foregoing California Energy Commission Committee Workshop; that it was thereafter transcribed into typewriting.

I further certify that I am not of counsel or attorney for any of the parties to said workshop, nor in any way interested in outcome of said workshop.

IN WITNESS WHEREOF, I have hereunto set my hand this 30th day of April, 2007.